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FINAL AEROSPACE MUSEUM SITE CLOSURE REPORT NAS FORT WORTH TX

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INTERNATIONAL TECHNOLOGIES

NAVAL AIR STATION FORT WORTH JRB CARSWELL FIELD TEXAS

ADMINISTRATIVE RECORD COVER SHEET

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Final
Aerospace Museum Site (AMS)
Closure Report
NAS Fort Worth JRB, Texas

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List of Acronyms

AFB	Air Force Base
AFCEE	Air Force Center for Environmental Excellence
AFP-4	Air Force Plant 4
AMS	Aerospace Museum Site
bgs	below ground surface
CMS	corrective measures study
COC	contaminant of concern
DPT	direct-push technology
ED	energy dispersive
EPA	U.S. Environmental Protection Agency
IRA	interim remedial action
IT	IT Corporation
Jacobs	Jacobs Engineering
JRB	Joint Reserve Base
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MQL	method quantitation limit
MSC	medium-specific concentration
NAS	Naval Air Station
NFA	no further action
RRS	Risk Reduction Standard
SPLP	synthetic precipitation leaching procedure
TAC	Texas Administrative Code
TNRCC	Texas Natural Resource Conservation Commission
USAF	U.S. Air Force
UTL	upper tolerance limit
XRF	x-ray fluorescence

1.0 Introduction

The Air Force Center for Environmental Excellence (AFCEE) contracted IT Corporation (IT) to perform additional sampling and analysis at the Aerospace Museum Site (AMS) at the Naval Air Station (NAS) Fort Worth Joint Reserve Base (JRB), formerly Carswell Air Force Base (AFB), Texas. This additional sampling was conducted to fill data gaps from previous investigations needed to achieve site closure under Texas Natural Resource Conservation Commission (TNRCC) Risk Reduction Standards (RRS) (30 Texas Administrative Code [TAC] 335, Subchapter Section 335.554) (TNRCC, 1996). Also, removal actions were completed by excavation and disposal of lead-contaminated soil. This report supports that this site can be closed under RRS 1.

1.1 Project Background

NAS Fort Worth JRB is a parcel of the former Carswell AFB that is being transferred from the U.S. Air Force (USAF) to U.S. Navy management following the closure of Carswell AFB on September 30, 1993. To complete the transfer of the property, environmental investigations were required to identify potential contamination relating to USAF activities prior to September 30, 1993, and contaminated sites had to be remediated to concentrations that are protective of human health and the environment.

1.2 Site Location and History

The AMS is located along Spur 341, west of the north-south primary instrument runway, south of Air Force Plant 4 (AFP-4), and adjacent to Farmers Branch Creek (Figure 1-1). The site is currently covered with grass and slopes gently from northwest to southeast.

This 12.5-acre museum site has been used for display of various aircraft, vehicles, and storage equipment. A records search indicated that an asphalt batching plant was previously located at the site (Universe Technologies Inc., 2000). Also, a B-52 bomber was previously stored and dismantled at the site, resulting in small chips of aircraft being buried in the surface soil. Background information discussing previous environmental investigations and observations associated with the AMS is provided in Appendix A.

1.3 Regulatory Requirements

Analytical data collected at the AMS were evaluated and compared to the TNRCC RRSs. The TNRCC RRSs (30 TAC 335, Subchapter S) specify a consistent risk management policy to

define what cleanup actions are necessary to protect human health and the environment. The RRSs define the following three tiers of cleanup standards:

- RRS 1 requires cleanup to laboratory nondetectable levels or site-specific levels. Cleanup at RRS 1 levels is commonly referred to as "clean closure." Deed certification on the property and post-closure care are not required under this standard. RRS 1 does not require cleanup if no hazardous chemicals are detected above background levels

- RRS 2 requires cleanup to default health-based levels such that any substantial threat to human health or the environment is reduced to acceptable levels. These cleanup standards are termed medium-specific concentrations (MSC). RRS 2 closure allows for delineation of contamination in lieu of cleanup for contaminant concentrations that do not exceed MSCs. Examples of MSCs for selected chemicals are tabulated in the regulations (30 TAC Section 336.568, Appendix II), and equations are prescribed for use in calculating MSCs for chemicals not listed. Deed certification on the property is required.

- RRS 3 requires a site-specific baseline risk assessment to define alternative cleanup levels based on health effects. Cleanup under RRS 3 standards may also require performing a corrective measures study to evaluate appropriate cleanup alternatives. Deed certification and post-closure care are required for cleanup under this standard.

The results for soil samples collected for analysis of inorganic compounds were compared to the approved Base-specific background upper tolerance limits (UTL) as presented in the final Basewide background study (Jacobs Engineering [Jacobs], 1998). Table 1-1 presents a summary of Jacobs background UTLs for constituents of concern at the AMS at NAS Fort Worth JRB. Analytical results of samples analyzed for organic compounds were compared to method quantitation limits (MQL) determined for a particular analytical method for a given constituent. Additionally, all analytical results were compared to available MSCs to determine whether the detected contaminants pose a threat to shallow groundwater. Table 1-2 presents a summary of MSCs used for this project.

2.0 Summary of Investigation Activities

In December 2000, IT collected surface and subsurface soil samples from 18 locations (36 samples total), per the approved work plan (Universe Technologies Inc., 2000). Soil samples were analyzed for zinc, lead, silver, and/or nickel by U.S. Environmental Protection Agency (EPA) Method SW6010B and for benzo(a)pyrene by EPA Method SW8310. In addition to soil

samples, two samples of the metal strips from the fence that lines the western portion of the site were submitted for zinc analysis. No groundwater samples were collected. The sample locations were selected to confirm the nature and extent of zinc, lead, silver, nickel, and benzo(a)pyrene contamination; to determine the potential of contaminants exceeding MSCs to leach into groundwater, using the synthetic precipitate leaching procedure (SPLP); and to define the nature and extent of zinc contamination along the fence line. Figure 2-1 shows the locations of soil samples collected during the December 2000 investigation.

Soil samples were collected using a hand auger according to procedures in the AFCEE Model Field Sampling Plan (AFCEE, 1998). Soil boring logs are provided in Appendix B.

2.1 Confirmation Soil Sample Results (December 2000)

Confirmation samples were collected in December 2000 from nine original sampling locations (Figure 2-1). At each location, soil samples were obtained at two intervals. surface (0 to 2 feet) and subsurface (2 to 4 feet). Samples were analyzed for zinc, lead, nickel and/or silver by EPA Method SW6010 and for benzo(a)pyrene by Method SW8260. Table 2-1 presents the analytical results from soil samples collected during the investigation compared to Basewide background concentrations for inorganic compounds and to the MQL for benzo(a)pyrene. A summary of SPLP results is shown in Table 2-2. The analytical results are provided in the data quality summary report included as Appendix C. The following paragraphs discuss these confirmation soil samples.

Surface Soil. Zinc was detected at concentrations above background (38.8 milligrams per kilogram [mg/kg]) in five of seven surface soil samples. However, all zinc detections were below the MSC for zinc (3,100 mg/kg).

The lead concentration detected in the surface soil sample from OT3848SAC was below background. The nickel concentration detected in the surface soil sample from S62C was also below background. Benzo(a)pyrene and silver were not detected in the sample from OT3801SAC

Lead (171 mg/kg) was detected above both background (30.97 mg/kg) and the MSC (1.5 mg/kg) in the sample collected from S55C. The lead concentration detected by the SPLP analysis (0.0714 milligrams per liter [mg/L]) exceeded the MSC for lead in groundwater (0.015 mg/L). The field duplicate results for S55C samples confirmed the elevated concentrations. Therefore,

excavation of contaminated soils in this area was required to achieve closure under RRS 2. A removal action was therefore undertaken, as discussed in Section 3.0.

Subsurface Soil. Zinc concentrations were at or below background (31.3 mg/kg) in all seven subsurface soil samples, and all concentrations were below the RRS 2 value for zinc of 3,100 mg/kg.

The lead concentration detected in the subsurface sample from OT3848SAC was below background. The nickel concentration detected in the subsurface sample from S62C was also below background. Benzo(a)pyrene and silver were not detected in the subsurface soil sample from OT3801SAC

Lead was detected in soil sample S55C and its field duplicate at concentrations (13 6 mg/kg and 17.1 mg/kg [field duplicate]) slightly above the background (12.66 mg/kg) and above the MSC (1.5 mg/kg) for lead. The SPLP concentration detected from sample location S55C (0.00761 mg/L) was below the MSC for lead in groundwater (0.015 mg/L), but the SPLP concentration detected in the field duplicate at S55C (0.0385 mg/L) exceeded the MSC.

2.2 Fence Line Soil Sample Results

Soil samples were collected from four locations along the fence line in December 2000 and analyzed for zinc by EPA Method SW6010B. Soil samples were taken at two intervals: surface (0 to 2 feet) and subsurface (2 to 4 feet). Zinc concentrations were detected above background (38.8 mg/kg) in three of four surface soil samples, but all concentrations were below the MSC for zinc (3,100 mg/kg). Zinc concentrations in the subsurface soils were detected above background (31.3 mg/kg) in two of four samples; all concentrations were below the MSC (Table 2-1).

2.3 Waterway Soil Sample Results

Soil samples were obtained from four locations in December 2000 along the waterway that runs parallel to Spur 341. Samples were obtained from the surface (0 to 2 feet) and subsurface (2 to 4 feet) and analyzed for zinc by EPA Method SW6010B. Zinc concentrations in all four surface soil samples were below background (Table 2-1). Zinc concentrations in the subsurface soil samples were all below background concentrations, except at location S55W. However, the zinc concentration at this location (44.8 mg/kg) was below the MSC.

2.4 Fence Material Sample Results

Two samples of the metal strips from the fence were collected in December 2000 for analysis by EPA Method SW6010B. Zinc was detected in the metal strips at concentrations of 17,100 mg/kg and 27,100 mg/kg (Table 2-1).

3.0 Interim Removal Actions

Soil excavation activities were completed between May and September 2001 to remove lead concentrations detected above background at sample location S55C during the December 2000 sampling event. Table 3-1 summarizes the soil samples collected during the excavation activities, and Table 3-2 presents the analytical results for lead concentrations detected in these samples compared to background and the MSC. Results from SPLP analyses are presented in Table 3-3. The data quality summary report for analytical samples collected during the excavation activities is provided in Appendix D.

The following sections detail the excavation and sampling activities completed at the AMS between May and September 2001.

3.1 Phase 1 Excavation Activities and Results

Removal actions were taken in May 2001 on a 5-foot square centered on the coordinates of sample location S55C. The extent of the initial excavation is shown in Figure 3-1. The 5-foot square was excavated to a depth of approximately 3 feet below ground surface (bgs), which produced approximately 3 cubic yards of soil for disposal. Confirmation samples were collected from the four side walls and the floor of the excavation and analyzed for lead using EPA Method 6010. As shown in Table 3-2, the lead concentrations detected in the May 2001 confirmation soil samples collected from the north wall (248 mg/kg), west wall (105 mg/kg), south wall (146 mg/kg), east wall (107 mg/kg) and floor (76.7 mg/kg) of the excavation exceeded the background concentration for lead in surface soil (30.97 mg/kg). SPLP analysis (Table 3-3) showed that lead concentrations detected in the west wall (0.026 mg/L), south wall (0.016 mg/L), and floor (0.047 mg/L) were above the MSC for groundwater (0.015 mg/L).

3.2 July 2001 Sampling Activities and Results

Direct-push technology (DPT) soil samples were collected on July 18, 2001, in an attempt to delineate the extent of lead contamination surrounding sample location S55C. Soil samples were collected from 12 DPT borings, as shown in Figure 3-1 and Table 3-1. The soil samples were

collected at depths of 1.5 to 2 feet bgs, 4.5 to 5 feet bgs, and 7.5 to 8 feet bgs to determine the horizontal and vertical extent of elevated lead concentrations surrounding S55C.

As shown in Table 3-2, lead concentrations were detected above background (30.97 mg/kg) at a depth of 1.5 to 2 feet bgs in the DPT soil samples collected from locations S55C-E1, S55C-E2, S55C-E3, S55C-N1, S55C-N2, and S55C-S1. All samples collected below 2 feet bgs in these DPT soil samples were either below the background lead concentration for subsurface soil (12.66 mg/kg) or just above the background concentration (e.g., S55-E2 [16.1 mg/kg at 4.5 to 5 feet bgs] and S55C-N1 [13.5 mg/kg at 4.5 to 5 feet bgs]). The lack of elevated lead concentrations above background in the subsurface soil samples indicated that elevated lead concentrations were confined to the upper 2 to 3 feet of soil.

Based upon the results from the July 18, 2001 DPT soil samples, an additional 5 DPT borings were sampled on July 23, 2001, to further delineate the elevated lead concentrations. Because the results from the July 18, 2001 subsurface samples indicated that the elevated lead concentrations were confined to the upper 2 feet of soil, soil samples were collected from 1.5 to 2 feet bgs at the 5 DPT borings. The lead concentrations detected in these soil samples were above background (Table 3-2), except for S55C-NE1, which is located the farthest distance from the road (Spur 341).

3.3 Phase 2 Excavation Activities and Results

The Phase 2 excavation activities were completed on July 26, 2001. The excavation limits, shown in Figure 3-1, were based upon the lead concentrations detected in the July 18 DPT soil samples, except for the north wall area. The limit for the north wall excavation was 10 feet beyond sample S55C-N3, which contained lead significantly above background in the sample from July 18, 2001. Soil was excavated to a depth of 3 feet bgs within the limits of the excavation. Approximately 150 cubic yards of soil were removed during the Phase 2 excavation.

Following the Phase 2 excavation, a total of 8 confirmation soil samples were collected from the walls and floor of the excavation (Figure 3-2). Table 3-1 list these confirmation soil samples and the corresponding sample depths. The lead concentrations detected in the Phase 2 confirmation samples are shown in Table 3-2. Lead concentrations detected in the confirmation floor samples (V8 and V9) were at or below background. However, lead concentrations detected in all of the wall samples (between 0 to 2 feet bgs) were significantly above background.

The analytical results from the July 23, 2001 soil samples (N4, N5, N6, NE1, and NW1) were received after completion of the Phase 2 excavation and sampling activities. The results from the July 23, 2001 soil samples (Table 3-2) were above the background concentration for lead, which suggested that the lead concentrations in the eight confirmation samples collected from the walls and floor of the Phase 2 excavation were above background. Therefore, IT collected additional soil samples to delineate the northern extent of lead concentrations for the excavation centered around S55C.

Hand augers were used to collect soil samples from 0 to 2 feet bgs at nine locations on July 26, 2001. As shown in Figure 3-1, five soil samples (N7 through N11) were collected at 15-foot intervals to the north from July 18 sample location N6. The remaining four soil samples (NE2, NE3, NW2, and NW3) were collected to delineate lead concentrations at the northeast and northwest portions of the excavation's north boundary.

The lead concentrations detected in the July 26, 2001 soil samples are shown in Table 3-2. The lead concentration detected at location N7 (94.3 mg/kg) exceeded background. Lead concentrations detected in the remaining eight samples (N8 through N11, NE2, NE3, NW2 and NW3) were below background in surface soils.

3.4 Phase 3 Excavation Activities and Results

The results of the Phase 2 confirmation samples indicated that lead concentrations were above background along all four sidewalls of the excavation (Samples V1-V7). Therefore, IT performed the Phase 3 excavation to remove lead-contaminated soil that was defined using the lead results from the July delineation samples. The Phase 3 excavation activities were completed during the period of August 20-23, 2001. Approximately 320 cubic yards of soil were excavated during the Phase 3 activities. Figure 3-3 displays the extent of the Phase 3 excavation, along with field screening and laboratory results for soil samples collected during and after the excavation.

An energy dispersive (ED) x-ray fluorescent (XRF) instrument was used to provide on-site screening level lead concentrations during the Phase 3 excavation. Once field screening results indicated that lead concentrations were below background, confirmation soil samples were collected every 20 feet from each wall of the Phase 3 excavation for analysis of lead by EPA Method 6010B at an off-site laboratory. The following paragraphs discuss the procedure used for delineating lead concentrations during the Phase 3 excavation.

The lead concentrations detected by the XRF instrument were used to define the extent of lead concentrations above background and the limits of the Phase 3 excavation. For example, along the south wall of the excavation, a trench 5 feet wide and 27 feet long was excavated to a depth of 3 feet bgs, and soil samples were analyzed for lead using the XRF instrument. Because the screening level lead concentrations detected by the XRF were above background, a second trench of the same dimensions was excavated, and additional field screening soil samples were collected. The XRF results from the southwest wall were below background; therefore, a confirmation soil sample (VS1) was collected for off-site analysis. Because the lead concentration detected in the field screening sample from the southeastern wall was above background, another trench (5 feet by 5 feet) was excavated; the XRF result for lead for this southeastern wall was below background. Therefore, a confirmation sample (VS2) was collected from the southeastern wall for off-site analysis. The excavations along the eastern and northern walls followed a similar strategy.

The Phase 3 excavation along the west wall was influenced by the presence of a security fence and the proximity to underground utilities (including fiber optic cable). The fence was removed so that a trench 1 foot wide by 86 feet long could be excavated to a depth of 3 feet bgs. The presence of the underground phone cable prohibited the excavation from extending farther west. Five confirmation soil samples (VW1 through VW5) were collected from the west wall and submitted for off-site analysis of lead.

The results of the Phase 3 confirmation samples collected on August 21, 2001, are presented in Table 3-2. The lead concentrations detected in confirmation soil samples from the south wall (VS1 and VS2), east wall (VE1, VE2, VE3, and VE4), and north wall (VN1 and VN2) were below background. The lead concentration detected in the composite soil sample collected from the floor of the northern portion of the Phase 3 excavation (VF1) was also below background. However, the five confirmation soil samples collected along the west wall of the excavation (near Spur 341) (VW1 through VW5) contained lead concentrations above background.

3.5 September 2001 Soil Samples (East of Spur 341)

On September 6, 2001, IT collected soil samples from 16 additional locations west of the fence line. The soil samples were collected in a series of four rows (FL, W1, W2, and W3) at depths of 12 to 18 inches bgs. The field screening and laboratory results for these soil samples are shown

on Figures 3-4 and 3-5, respectively. Field screening results using the XRF instrument are presented in Table 3-4.

The analytical results of the September 6, 2001 hand-augered soil samples are presented in Table 3-2 and shown in Figure 3-5. Fourteen of the 16 soil samples submitted for laboratory analysis contained lead concentrations above background for surface soil. As shown in Figure 3-5, the lead concentrations detected in the September 6, 2001 soil samples appear to be randomly distributed, and no clear source of lead was identified in these samples.

3.6 September 2001 Soil Samples (West of Spur 341)

The extent of lead concentrations exceeding background in surface soils near Spur 341 was not defined by confirmation samples collected from three phases of soil excavation or from delineation samples collected near Spur 341. The presence of elevated lead concentrations near Spur 341 suggested that exhaust emissions from cars and trucks using leaded gasoline over a 40-year period may have distributed lead particles along the roadway. Therefore, IT collected three soil samples to the west of Spur 341 on September 21, 2001, to provide evidence that the elevated lead concentrations found in surface soil to the east of Spur 341 were likely the result of anthropogenic sources and not related to Air Force activities at the AMS. The three soil samples were collected from 2 feet bgs using a hand auger and were submitted to the laboratory for analysis of lead using EPA Method 6010B.

The analytical results of the soil samples collected on September 21, 2001, are presented on Table 3-1 and shown in Figure 3-5. The lead concentrations detected in surface soils collected west of Spur 341 ranged from 53.8 to 141 mg/kg, which exceed background. The results from these samples provides evidence that the lead concentrations detected in surface soil along Spur 341 are from anthropogenic sources and not related to Air Force activities at the AMS.

4.0 Discussion

The following sections discuss lead and zinc concentrations that were detected above background at the AMS.

4.1 Lead Concentrations in Soil

The presence of lead concentrations above background in surface soils at the AMS appears to be the result of emissions of leaded gasoline from cars and trucks that traveled through the entrance gate to AFP-4 over 40 years of operation. Several studies have been performed indicating that lead concentrations in surface soils along heavily trafficked roads are typically higher than normal background levels.

According to the *EPA Technical Summary, Volume I, A Summary of Studies Addressing the Source of Soil-Lead*, (EPA, 1998) four general types of supporting evidence have been used in the literature in examining leaded gasoline as a source of lead in soil: 1) distance from the roadway, 2) association with ambient air levels, 3) association with traffic volume, and 4) community area pattern. Approximately 40 percent of lead emitted as vehicular exhaust is in sufficiently large particles to be deposited near the roadway (EPA, 1998).

The EPA Technical Summary provides many examples to demonstrate the relationship of high lead concentrations and proximity to roadways and/or volume of traffic. Specific examples of concentrations near roadways compared to areas not near roadways are provided in this report, and excerpts include:

> A study in Corpus Christi, Texas, revealed that the arithmetic mean of lead concentrations near highways (379 samples) was 250 mg/kg, while the arithmetic mean lead concentration near parks (94 samples) was 55 mg/kg, and the arithmetic mean lead concentration near schools (12 samples) was 57 mg/kg.
>
> Another study in Beltsville, Maryland, demonstrated that lead concentrations decrease as distance from the highway increases. Specifically, at a distance of 8 meters from the highway, concentrations on either side of the road were 108.8 mg/kg and 87.37 mg/kg. At a distance of 25 meters from the road, lead concentrations decreased to 37.42 mg/kg and 25.42 mg/kg; and, at a distance of 50 meters from the road, lead concentrations again decreased to 14.16 mg/kg and 19.2 mg/kg.

AFP-4 has operated continuously since April 1942 and currently employs over 12,000 people. Spur 341 has been used as the southern entrance to AFP-4 since 1942. AMS is located approximately 1,000 feet from AFP-4's southern entrance gate. Consequently, exhaust emissions from cars and trucks using leaded gasoline over a 40-year period are most likely an anthropogenic source of lead found along Spur 341 at the AMS. Lead was eliminated from gasoline in the early 1980s. Results of surficial lead sampling at the western portion of the AMS

have shown a pattern of elevated lead concentrations near roadways, with concentrations dropping off as the distance from the roadway increased.

A close examination of the locations of soil samples collected in the basewide background study of NAS Fort Worth JRB (Jacobs, 1998) reveals that all the samples collected for the basewide background study were collected well away from historical primary roadways, and many were collected at school and park settings. This collection pattern has introduced a low bias for surface background lead concentrations at NAS Fort Worth JRB, especially where lead is detected above background near roadways that have been historically exposed to elevated lead emissions (HydroGeoLogic, 2000).

4.2 Zinc Concentrations in Soil

Zinc concentrations were detected above background at several surface sample locations at the AMS. The maximum zinc concentration detected in surface soil was 126 mg/kg at sample location S52C. The background concentration for zinc in surface soil at NAS Fort Worth JRB is 38.8 mg/kg. All zinc concentrations detected at the AMS are well below the MSC for zinc in soil (3,100 mg/kg).

Zinc is used in the form of zinc oxide during the manufacture of automobile tires, as an accelerator in the vulcanization process. Increased vehicular usage has been shown to elevate zinc concentrations detected in runoff from population centers (Callender and Rice, 2000). Considering the large amount of vehicular traffic along Spur 341 and that runoff from Spur 341 flows east across the AMS into the aqueduct, the elevated zinc concentrations found in surface soil are likely from an anthropogenic source and not related to activities at the AMS.

The galvanized steel fence at the western edge of the AMS is a second potential anthropogenic source of zinc concentrations. As presented in Section 2.4, zinc concentrations of 17,100 and 27,100 mg/kg were detected in samples from the fence material.

5.0 Summary and Conclusions

In December 2000, IT conducted a soil sampling event that included collecting and analyzing soil samples from 18 locations at the AMS at NAS Fort Worth JRB, formerly Carswell AFB. Surface and subsurface soil samples were collected at nine locations sampled to confirm concentrations of zinc, lead, silver, nickel, and benzo(a)pyrene that were detected during

previous investigations. The analytical results showed that lead and zinc were the only constituents that were detected above background concentrations. However, as discussed in Section 4.2, the zinc concentrations detected in surface soil at the AMS are likely the result of an anthropogenic source. Zinc is found in automobile tires, and runoff from Spur 341 is likely to have caused the elevated zinc concentrations detected in surface soil at the AMS. Zinc was also found at high concentrations in the galvanized steel fence running along the western border of the AMS. The maximum zinc concentration detected in soil at the AMS, 126 mg/kg, is well below the MSC (3,100 mg/kg).

Lead concentrations detected in the December 2000 soil samples at location S55C were above the background (30.97 mg/kg) and MSC (1.5 mg/kg). Therefore, soil excavations were completed in May, July, and August 2001 to remove lead concentrations centered around sample location S55C. Between excavation events, hand-auger and DPT soil samples were collected to delineate the extent of lead concentrations above background between excavation events. Soil samples collected during the excavation activities indicated that elevated lead concentrations were limited to the upper 2 to 3 feet of soil. Excavation activities continued until lead concentrations detected in the north, south and east sidewalls were below background. However, the excavation of the west sidewall was halted, due to the presence of a fiber optic cable running along Spur 341.

Hand-auger soil samples were collected between the west wall of the AMS excavation and Spur 341 in September 2001. The results from these soil samples indicated that lead concentrations were above background. Soil samples were then collected on the west side of Spur 341, which also showed lead concentrations above background. As discussed in Section 4.1, the lead concentrations detected in surface soil at the AMS are likely the result of an anthropogenic source, the emissions from leaded-gasoline-burning vehicles that traveled on Spur 341 through the entrance to AFP-4.

The analytical results from the soil samples collected by IT indicate that the AMS meets the criteria for closure under RRS 1 for the following reasons:

- Benzo(a)pyrene and silver were not detected in confirmation soil samples collected at former location OT3801SAC.
- Nickel was detected at concentrations below background in soil samples collected at former location S62C.

- Lead and zinc concentrations exceeding background at the site are the result of anthropogenic sources (i.e., vehicle exhaust fumes for lead, runoff containing tire residues for zinc).

Based upon this information, no further action (NFA) is warranted for the subject site, and the AMS is recommended for closure under RRS 1.

6.0 References

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TABLES

Table 1-1

Soil and Groundwater Background Inorganic Concentrations
Aerospace Museum Site
NAS Fort Worth JRB, Texas

Analyte	Surface Soils UTL (mg/kg)	Subsurface Soils UTL (mg/kg)	Groundwater UTL (mg/L)
LEAD	30.97	12.66	ND at 0.0016
NICKEL	14 6	19 76	0 0204
SILVER	0 213	0 128	0 0002
ZINC	38 8	31 3	0 118

Source
Jacobs Engineering Group, Inc , 1998, *NAS Fort Worth JRB, Texas (Formerly Carswell AFB, Texas), Final Basewide Background Study, Volume I*

mg/kg = Milligrams per kilogram
mg/L = Milligrams per liter
ND = Not detected
UTL = Upper tolerance limit

Table 1-2

TNRCC Risk Reduction Standard 2
Medium-Specific Concentrations
Aerospace Museum Site
NAS Fort Worth JRB, Texas

Parameter	Surface Soil[a] MSC (mg/kg)	Subsurface Soil[b] MSC (mg/kg)	Groundwater[c] MSC (mg/L)
LEAD	1 5	1 5	0 015
NICKEL	200	200	2
SILVER	51	51	0 51
ZINC	3100	3100	31
BENZO(A)PYRENE	0 02	0 02	0 0002

Notes
Reference TNRCC Risk Reduction Standards, TNRCC, 1993, "Final Standards Chapter 335, Subchapter S Risk Reduction Standards," *Texas Register* 18 3842-3872
MSC - Medium-specific concentration
mg/kg - Milligrams per kilogram
mg/L - Milligrams per liter
TNRCC - Teaxs Natural Resource Conservation Commission

Table 2-1

Summary of Soil Analytical Results Compared to Background and MSCs
Aerospace Museum Site
NAS Fort Worth JRB, Texas

Location	Sample No.	Sample Date	Start Depth (FT)	End Depth (FT)	Parameter	Reporting Limit (mg/kg)	Result (mg/kg)	Laboratory Qualifier	Validation Qualifier	Background UTL [1] (mg/kg)	Does Result Support Closure Under RRS1?	TNRCC MSC [2] (mg/kg)	Does Result Support Closure Under RRS2?
FENCE1	BM0001	5-Dec-00	---	---	Zinc	50	17100	M	nv	38 8	No	3 10E+03	No
FENCE2	BM0002	5-Dec-00	---	---	Zinc	100	27100			38 8	No	3 10E+03	No
OT3801SAC	BM0021	5-Dec-00	0	2	Benzo(a)pyrene	0 012	0 012	U	U	1 20E-02	Yes	2 00E-02	NA
OT3801SAC	BM0021	5-Dec-00	0	2	Silver	1 2	1 2	U	U	0 213	Yes	5 10E+01	NA
OT3801SAC	BM0022	5-Dec-00	2	4	Benzo(a)pyrene	0 013	0 013	U	U	1 20E-02	Yes	2 00E-02	NA
OT3801SAC	BM0022	5-Dec-00	2	4	Silver	1 3	0 199	F	U	0 128	Yes	5 10E+01	NA
OT3848SAC	BM0019	5-Dec-00	0	2	Lead	1 2	20 2		nv	30 97	Yes	1 50E+00	NA
OT3848SAC	BM0020	5-Dec-00	2	4	Lead	1 1	6 99		nv	12 66	Yes	1 50E+00	NA
S52C	BM0003	5-Dec-00	0	2	Zinc	1 3	126		nv	38 8	No	3 10E+03	Yes
S52C	BM0004	5-Dec-00	2	4	Zinc	1 2	30 6		J	31 3	Yes	3 10E+03	NA
S52F	BM0023	5-Dec-00	0	2	Zinc	1 2	47		nv	38 8	No	3 10E+03	Yes
S52F	BM0024	5-Dec-00	2	4	Zinc	1 2	33 7		nv	31 3	No	3 10E+03	Yes
S52W	BM0031	5-Dec-00	0	2	Zinc	1 1	37 4		J	38 8	Yes	3 10E+03	NA
S52W	BM0032	5-Dec-00	0	2	Zinc	1 3	37 4		nv	38 8	Yes	3 10E+03	NA
S52W	BM0033	5-Dec-00	2	4	Zinc	1 1	30 1		J	31 3	Yes	3 10E+03	NA
S52W	BM0034	5-Dec-00	2	4	Zinc	1 3	39		nv	31 3	No	3 10E+03	Yes
S53C	BM0005	5-Dec-00	0	2	Zinc	1 2	117		nv	38 8	No	3 10E+03	Yes
S53C	BM0006	5-Dec-00	2	4	Zinc	1 2	27 9		nv	31 3	Yes	3 10E+03	NA
S53F	BM0025	5-Dec-00	0	2	Zinc	1 2	185		nv	38 8	No	3 10E+03	Yes
S53F	BM0026	5-Dec-00	2	4	Zinc	1 1	25 2		nv	31 3	Yes	3 10E+03	NA
S53W	BM0035	5-Dec-00	0	2	Zinc	1 2	22 2		nv	38 8	Yes	3 10E+03	NA
S53W	BM0036	5-Dec-00	2	4	Zinc	1 1	12 1		nv	31 3	Yes	3 10E+03	NA

Table 2-1

Summary of Soil Analytical Results Compared to Background and MSCs
Aerospace Museum Site
NAS Fort Worth JRB, Texas

Location	Sample No.	Sample Date	Start Depth (FT)	End Depth (FT)	Parameter	Reporting Limit (mg/kg)	Result (mg/kg)	Laboratory Qualifier	Validation Qualifier	Background UTL [1] (mg/kg)	Does Result Support Closure Under RRS1?	TNRCC MSC [2] (mg/kg)	Does Result Support Closure Under RRS2?
S54C	BM0007	5-Dec-00	0	2	Zinc	1 2	64 5		nv	38 8	No	3 10E+03	Yes
S54C	BM0008	5-Dec-00	2	4	Zinc	1 2	29 6		nv	31 3	Yes	3 10E+03	NA
S54F	BM0027	5-Dec-00	0	2	Zinc	1 2	35 6	M	J	38 8	Yes	3 10E+03	NA
S54F	BM0028	5-Dec-00	2	4	Zinc	1 2	29 3		nv	31 3	Yes	3 10E+03	NA
S54W	BM0037	5-Dec-00	0	2	Zinc	1 1	25 8		nv	38 8	Yes	3 10E+03	NA
S54W	BM0038	5-Dec-00	2	4	Zinc	1 2	30 6		nv	31 3	Yes	3 10E+03	NA
S55C	BM0009	5-Dec-00	0	2	Lead	1 2	171			30 97	No	1 50E+00	No
S55C	BM0009	5-Dec-00	0	2	Zinc	1 2	109		J	38 8	No	3 10E+03	Yes
S55C	BM0010	5-Dec-00	0	2	Lead	1 2	206		nv	30 97	No	1 50E+00	No
S55C	BM0010	5-Dec-00	0	2	Zinc	1 2	96 2		nv	38 8	No	3 10E+03	Yes
S55C	BM0011	5-Dec-00	2	4	Lead	1 2	13 6			12 66	No	1 50E+00	No
S55C	BM0011	5-Dec-00	2	4	Zinc	1 2	21 2		J	31 3	Yes	3 10E+03	NA
S55C	BM0012	5-Dec-00	2	4	Lead	1 2	17 1		nv	12 66	No	1 50E+00	No
S55C	BM0012	5-Dec-00	2	4	Zinc	1 2	28 7		nv	31 3	Yes	3 10E+03	NA
S55F	BM0029	5-Dec-00	0	2	Zinc	1 1	84 8		nv	38 8	No	3 10E+03	Yes
S55F	BM0030	5-Dec-00	2	4	Zinc	1 1	35 7		nv	31 3	No	3 10E+03	Yes
S55W	BM0039	5-Dec-00	0	2	Zinc	1 2	28 5		nv	38 8	Yes	3 10E+03	NA
S55W	BM0040	5-Dec-00	2	4	Zinc	1 2	44 8		nv	31 3	No	3 10E+03	Yes
S58C	BM0013	5-Dec-00	0	2	Zinc	1 2	33 3		nv	38 8	Yes	3 10E+03	NA
S58C	BM0014	5-Dec-00	2	4	Zinc	1 1	21		nv	31 3	Yes	3 10E+03	NA
S59C	BM0015	5-Dec-00	0	2	Zinc	1 1	33 9		nv	38 8	Yes	3 10E+03	NA
S59C	BM0016	5-Dec-00	2	4	Zinc	1 2	22		nv	31 3	Yes	3 10E+03	NA

Table 2-1

Summary of Soil Analytical Results Compared to Background and MSCs
Aerospace Museum Site
NAS Fort Worth JRB, Texas

Location	Sample No.	Sample Date	Start Depth (FT)	End Depth (FT)	Parameter	Reporting Limit (mg/kg)	Result (mg/kg)	Laboratory Qualifier	Validation Qualifier	Background UTL [1] (mg/kg)	Does Result Support Closure Under RRS1?	TNRCC MSC [2] (mg/kg)	Does Result Support Closure Under RRS2?
S62C	BM0017	5-Dec-00	0	2	Nickel	2 3	6 56		nv	14 6	Yes	2 00E+02	NA
S62C	BM0017	5-Dec-00	0	2	Zinc	1 2	63 6		nv	38 8	No	3 10E+03	Yes
S62C	BM0018	5-Dec-00	2	4	Nickel	2 4	11		nv	19 76	Yes	2 00E+02	NA
S62C	BM0018	5-Dec-00	2	4	Zinc	1 2	32 1		nv	31 3	No	3 10E+03	Yes

MSC = Medium Specific Concentration
NA = not applicable
RRS1 = Risk Reduction Standard 1
RRS2 = Risk Reduction Standard 2
TNRCC = Texas Natural Resources Conservation Commission
UTL = Upper Tolerance Limit

Footnotes

[1] UTLs derived from Final Draft Basewide Background Study, Jacobs Engineering, 1998

[2] TNRCC, 1999, "Updated Examples of Standard No 2, Appendix II Medium-Specific Concentrations (MSCs) - Industrial Setting", July 14

Laboratory Qualifier Definitions

= The analyte was positively identified
U = The analyte was analyzed for, but not detected The associated numerical value is at or below the MDL
F = The analyte was positively identified but the associated numerical value is below the reporting limit
J = The analyte is present, but reported value may not be accurate or precise
M = Matrix interferences
nv = not validated

Table 2-2

Summary of SPLP Results Compared to Background and MSCs
Aerospace Museum Site
NAS Fort Worth JRB, Texas

Location	Sample No.	Sample Date	Start Depth (FT)	End Depth (FT)	Parameter	Reporting Limit (mg/L)	Result (mg/L)	Laboratory Qualifier	Validation Qualifier	Background UTL [1] (mg/L)	Does Result Support Closure Under RRS1?	TNRCC MSC [2] (mg/L)	Does Result Support Closure Under RRS2?
OT3801SAC	BM0021	5-Dec-00	0	2	Benzo(a)pyrene	0 0002	0 0002	U	UJ	0 2	Yes	2 00E-04	NA
OT3801SAC	BM0021	5-Dec-00	0	2	Silver	0 01	0 00146	F	U	0 0002	Yes	5 10E-01	NA
OT3801SAC	BM0022	5-Dec-00	2	4	Benzo(a)pyrene	0 0002	0 0002	U	UJ	0 2	Yes	2 00E-04	NA
OT3801SAC	BM0022	5-Dec-00	2	4	Silver	0 01	0 00167	F	U	0 0002	Yes	5 10E-01	NA
OT3848SAC	BM0019	5-Dec-00	0	2	Lead	0 005	0 0293		nv	0 0016	No	1 50E-02	No
OT3848SAC	BM0020	5-Dec-00	2	4	Lead	0 005	0 00411	F	nv	0 0016	No	1 50E-02	Yes
S52C	BM0003	5-Dec-00	0	2	Zinc	0 02	0 167		nv	0 118	No	3 10E+01	Yes
S52C	BM0004	5-Dec-00	2	4	Zinc	0 02	0 0189	F	J	0 118	Yes	3 10E+01	NA
S52F	BM0023	5-Dec-00	0	2	Zinc	0 02	0 163		nv	0 118	No	3 10E+01	Yes
S52F	BM0024	5-Dec-00	2	4	Zinc	0 02	0 111		nv	0 118	Yes	3 10E+01	NA
S52W	BM0031	5-Dec-00	0	2	Zinc	0 02	0 363		J	0 118	No	3 10E+01	Yes
S52W	BM0032	5-Dec-00	0	2	Zinc	0 02	0 255		nv	0 118	No	3 10E+01	Yes
S52W	BM0033	5-Dec-00	2	4	Zinc	0 02	0 133		J	0 118	No	3 10E+01	Yes
S52W	BM0034	5-Dec-00	2	4	Zinc	0 02	0 483		nv	0 118	No	3 10E+01	Yes
S53C	BM0005	5-Dec-00	0	2	Zinc	0 02	0 0279		nv	0 118	Yes	3 10E+01	NA
S53C	BM0006	5-Dec-00	2	4	Zinc	0 02	0 0791		nv	0 118	Yes	3 10E+01	NA
S53F	BM0025	5-Dec-00	0	2	Zinc	0 02	0 158		nv	0 118	No	3 10E+01	Yes
S53F	BM0026	5-Dec-00	2	4	Zinc	0 02	0 0347		nv	0 118	Yes	3 10E+01	NA
S53W	BM0035	5-Dec-00	0	2	Zinc	0 02	0 0723		nv	0 118	Yes	3 10E+01	NA
S53W	BM0036	5-Dec-00	2	4	Zinc	0 02	0 101		nv	0 118	Yes	3 10E+01	NA

Table 2-2

Summary of SPLP Results Compared to Background and MSCs
Aerospace Museum Site
NAS Fort Worth JRB, Texas

Location	Sample No	Sample Date	Start Depth (FT)	End Depth (FT)	Parameter	Reporting Limit (mg/L)	Result (mg/L)	Laboratory Qualifier	Validation Qualifier	Background UTL [1] (mg/L)	Does Result Support Closure Under RRS1?	TNRCC MSC [2] (mg/L)	Does Result Support Closure Under RRS2?
S54C	BM0007	5-Dec-00	0	2	Zinc	0 02	0 331		nv	0 118	No	3 10E+01	Yes
S54C	BM0008	5-Dec-00	2	4	Zinc	0 02	0 157		nv	0 118	No	3 10E+01	Yes
S54F	BM0027	5-Dec-00	0	2	Zinc	0 02	0 317		J	0 118	No	3 10E+01	Yes
S54F	BM0028	5-Dec-00	2	4	Zinc	0 02	0 185		nv	0 118	No	3 10E+01	Yes
S54W	BM0037	5-Dec-00	0	2	Zinc	0 02	0 149		nv	0 118	No	3 10E+01	Yes
S54W	BM0038	5-Dec-00	2	4	Zinc	0 02	0 148		nv	0 118	No	3 10E+01	Yes
S55C	BM0009	5-Dec-00	0	2	Lead	0 005	0 0714			0 0016	No	1 50E-02	No
S55C	BM0009	5-Dec-00	0	2	Zinc	0 02	0 0837		J	0 118	Yes	3 10E+01	NA
S55C	BM0010	5-Dec-00	0	2	Lead	0 005	0 0451		nv	0 0016	No	1 50E-02	No
S55C	BM0010	5-Dec-00	0	2	Zinc	0 02	0 0549		nv	0 118	Yes	3 10E+01	NA
S55C	BM0011	5-Dec-00	2	4	Lead	0 005	0 00761			0 0016	No	1 50E-02	Yes
S55C	BM0011	5-Dec-00	2	4	Zinc	0 02	0 045		J	0 118	Yes	3 10E+01	NA
S55C	BM0012	5-Dec-00	2	4	Lead	0 005	0 0385		nv	0 0016	No	1 50E-02	No
S55C	BM0012	5-Dec-00	2	4	Zinc	0 02	0 0999		nv	0 118	Yes	3 10E+01	NA
S55F	BM0029	5-Dec-00	0	2	Zinc	0 02	0 384		nv	0 118	No	3 10E+01	Yes
S55F	BM0030	5-Dec-00	2	4	Zinc	0 02	0 1		nv	0 118	Yes	3 10E+01	NA
S55W	BM0039	5-Dec-00	0	2	Zinc	0 02	0 549		nv	0 118	No	3 10E+01	Yes
S55W	BM0040	5-Dec-00	2	4	Zinc	0 02	0 494		nv	0 118	No	3 10E+01	Yes
S58C	BM0013	5-Dec-00	0	2	Zinc	0 02	0 0724		nv	0 118	Yes	3 10E+01	NA
S58C	BM0014	5-Dec-00	2	4	Zinc	0 02	0 0371		nv	0 118	Yes	3 10E+01	NA
S59C	BM0015	5-Dec-00	0	2	Zinc	0 02	0 044		nv	0 118	Yes	3 10E+01	NA
S59C	BM0016	5-Dec-00	2	4	Zinc	0 02	0 0481		nv	0 118	Yes	3 10E+01	NA

Table 2-2

Summary of SPLP Results Compared to Background and MSCs
Aerospace Museum Site
NAS Fort Worth JRB, Texas

Location	Sample No.	Sample Date	Start Depth (FT)	End Depth (FT)	Parameter	Reporting Limit (mg/L)	Result (mg/L)	Laboratory Qualifier	Validation Qualifier	Background UTL [1] (mg/L)	Does Result Support Closure Under RRS1?	TNRCC MSC [2] (mg/L)	Does Result Support Closure Under RRS2?
S62C	BM0017	5-Dec-00	0	2	Nickel	0 01	0 0188	F	nv	0 0204	Yes	2 00E+00	NA
S62C	BM0017	5-Dec-00	0	2	Zinc	0 02	0 112		nv	0 118	Yes	3 10E+01	NA
S62C	BM0018	5-Dec-00	2	4	Nickel	0 01	0 0038	F	nv	0 0204	Yes	2 00E+00	NA
S62C	BM0018	5-Dec-00	2	4	Zinc	0 02	0 0501		nv	0 118	Yes	3 10E+01	NA

MSC = Medium Specific Concentration
NA = not applicable
RRS1 = Risk Reduction Standard 1
RRS2 = Risk Reduction Standard 2
TNRCC = Texas Natural Resources Conservation Commission
UTL = Upper Tolerance Limit

Footnotes:

[1] UTLs derived from Final Draft Basewide Background Study, Jacobs Engineering, 1998

[2] TNRCC, 1999, "Updated Examples of Standard No 2, Appendix II Medium-Specific Concentrations (MSCs) - Industrial Setting", July 14

Laboratory Qualifier Definitions:

= The analyte was positively identified
U = The analyte was analyzed for, but not detected The associated numerical value is at or below the MDL
F = The analyte was positively identified but the associated numerical value is below the reporting limit
J = The analyte is present, but reported value may not be accurate or precise
UJ = The analyte was not detected at the estimated reporting limit shown
nv = not validated

Table 3-1

Summary of Soil Samples and Analyses During 2001 Excavation Activities
Aerospace Museum Site
NAS Fort Worth JRB, Texas

Sample Location	Sample Name	Sample Number	Date Sampled	Sample Depth[1]	Analytical Suite
Phase 1 Confirmation Samples from Initial Excavation					
East Floor	S55C-SO-BM0045-REG	BM0045	23-May-01	0-3 0'	Lead by SW6010B & SPLP Lead by SW1312/SW6010B
West Wall	S55C-SO-BM0043-REG	BM0043	23-May-01	0-3 0'	Lead by SW6010B & SPLP Lead by SW1312/SW6010B
South Wall	S55C-SO-BM0044-REG	BM0044	23-May-01	0-3 0'	Lead by SW6010B & SPLP Lead by SW1312/SW6010B
North Wall	S55C-SO-BM0042-REG	BM0042	23-May-01	0-3 0'	Lead by SW6010B & SPLP Lead by SW1312/SW6010B
Floor	S55C-SO-BM0046-REG	BM0046	23-May-01	3 0-3 5'	Lead by SW6010B & SPLP Lead by SW1312/SW6010B
July 2001 Preverification Samples					
S55C-N1	S55C-N1-SS-BM0047-REG	BM0047	18-Jul-01	1 5-2 0'	Lead by SW6010B
	S55C-N1-SS-BM0047MS-MS	BM0047MS	18-Jul-01	1 5-2 0'	Lead by SW6010B
	S55C-N1-SS-BM0047MSD-MSD	BM0047MSD	18-Jul-01	1 5-2 0'	Lead by SW6010B
	S55C-N1-SO-BM0048-REG	BM0048	18-Jul-01	4 5-5 0'	Lead by SW6010B
	S55C-N1-SO-BM0049-REG	BM0049	18-Jul-01	7 5-8 0'	Lead by SW6010B
	S55C-N1-SO-BM0050-FD	BM0050	18-Jul-01	7 5-8 0'	Lead by SW6010B
S55C-N2	S55C-N2-SS-BM0051-REG	BM0051	18-Jul-01	1 5-2 0'	Lead by SW6010B
	S55C-N2-SO-BM0052-REG	BM0052	18-Jul-01	4 5-5 0'	Lead by SW6010B
	S55C-N2-SO-BM0053-REG	BM0053	18-Jul-01	7 5-8 0'	Lead by SW6010B
S55C-N3	S55C-N3-SS-BM0054-REG	BM0054	18-Jul-01	1 5-2 0'	Lead by SW6010B
	S55C-N3-SO-BM0055-REG	BM0055	18-Jul-01	4 5-5 0'	Lead by SW6010B
	S55C-N3-SO-BM0056-REG	BM0056	18-Jul-01	7 5-8 0'	Lead by SW6010B
S55C-N4	S55C-N4-SS-BM0092-REG	BM0092	23-Jul-01	1 5-2 0'	Lead by SW6010B
S55C-N5	S55C-N5-SS-BM0093-REG	BM0093	23-Jul-01	1 5-2 0'	Lead by SW6010B
S55C-N6	S55C-N6-SS-BM0094-REG	BM0094	23-Jul-01	1 5-2 0'	Lead by SW6010B
S55C-N7	S55C-N7-SS-BM0107-REG	BM0107	26-Jul-01	0 0-2 0'	Lead by SW6010B & SPLP Lead by SW1312/SW6010B
S55C-N8	S55C-N8-SS-BM0108-REG	BM0108	26-Jul-01	0 0-2 0'	Lead by SW6010B
S55C-N9	S55C-N9-SS-BM0109-REG	BM0109	26-Jul-01	0 0-2 0'	Lead by SW6010B
S55C-N10	S55C-N10-SS-BM0110-REG	BM0110	26-Jul-01	0 0-2 0'	Lead by SW6010B
S55C-N11	S55C-N11-SS-BM0111-REG	BM0111	26-Jul-01	0 0-2 0'	Lead by SW6010B
S55C-NE1	S55C-NE1-SS-BM0095-REG	BM0095	23-Jul-01	1 5-2 0'	Lead by SW6010B
S55C-NE2	S55C-NE2-SS-BM0112-REG	BM0112	26-Jul-01	0 0-2 0'	Lead by SW6010B
S55C-NE3	S55C-NE3-SS-BM0114-REG	BM0114	26-Jul-01	0 0-2 0'	Lead by SW6010B
	S55C-NE3-SS-BM0114FD-FD	BM0114FD	26-Jul-01	0 0-2 0'	Lead by SW6010B
S55C-NW1	S55C-NW1-SS-BM0096-REG	BM0096	23-Jul-01	1 5-2 0'	Lead by SW6010B
S55C-NW2	S55C-NW2-SS-BM0113-REG	BM0113	26-Jul-01	0 0-2 0'	Lead by SW6010B
S55C-NW3	S55C-NW3-SS-BM0115-REG	BM0115	26-Jul-01	0 0-2 0'	Lead by SW6010B
S55C-E1	S55C-E1-SS-BM0057-REG	BM0057	18-Jul-01	1 5-2 0'	Lead by SW6010B
	S55C-E1-SO-BM0058-REG	BM0058	18-Jul-01	4 5-5 0'	Lead by SW6010B
	S55C-E1-SO-BM0059-REG	BM0059	18-Jul-01	7 5-8 0'	Lead by SW6010B
	S55C-E1-SO-BM0060-FD	BM0060	18-Jul-01	7 5-8 0'	Lead by SW6010B
S55C-E2	S55C-E2-SS-BM0061-REG	BM0061	18-Jul-01	1 5-2 0'	Lead by SW6010B
	S55C-E2-SO-BM0062-REG	BM0062	18-Jul-01	4 5-5 0'	Lead by SW6010B
	S55C-E2-SO-BM0063-REG	BM0063	18-Jul-01	7 5-8 0'	Lead by SW6010B
S55C-E3	S55C-E3-SS-BM0064-REG	BM0064	18-Jul-01	1 5-2 0'	Lead by SW6010B
	S55C-E3-SO-BM0065-REG	BM0065	18-Jul-01	4 5-5 0'	Lead by SW6010B
	S55C-E3-SO-BM0066-REG	BM0066	18-Jul-01	7 5-8 0'	Lead by SW6010B
S55C-S1	S55C-S1-SS-BM0067-REG	BM0067	18-Jul-01	1 5-2 0'	Lead by SW6010B
	S55C-S1-SO-BM0068-REG	BM0068	18-Jul-01	4 5-5 0'	Lead by SW6010B
	S55C-S1-SO-BM0069-REG	BM0069	18-Jul-01	7 5-8 0'	Lead by SW6010B
S55C-S2	S55C-S2-SS-BM0070-REG	BM0070	18-Jul-01	1 5-2 0'	Lead by SW6010B
	S55C-S2-SO-BM0071-REG	BM0071	18-Jul-01	4 5-5 0'	Lead by SW6010B
	S55C-S2-SO-BM0072-FD	BM0072	18-Jul-01	4 5-5 0'	Lead by SW6010B
	S55C-S2-SO-BM0073-REG	BM0073	18-Jul-01	7 5-8 0'	Lead by SW6010B
S55C-S3	S55C-S3-SS-BM0074-REG	BM0074	18-Jul-01	1 5-2 0'	Lead by SW6010B
	S55C-S3-SO-BM0075-REG	BM0075	18-Jul-01	4 5-5 0'	Lead by SW6010B
	S55C-S3-SO-BM0076-REG	BM0076	18-Jul-01	7 5-8 0'	Lead by SW6010B
S55C-W1	S55C-W1-SS-BM0077-REG	BM0077	18-Jul-01	1 5-2 0'	Lead by SW6010B
	S55C-W1-SO-BM0078-REG	BM0078	18-Jul-01	4 5-5 0'	Lead by SW6010B
	S55C-W1-SO-BM0078MS-MS	BM0078MS	18-Jul-01	4 5-5 0'	Lead by SW6010B
	S55C-W1-SO-BM0078MSD-MSD	BM0078MSD	18-Jul-01	4 5-5 0'	Lead by SW6010B
	S55C-W1-SO-BM0079-REG	BM0079	18-Jul-01	7 5-8 0'	Lead by SW6010B

Table 3-1

Summary of Soil Samples and Analyses During 2001 Excavation Activities
Aerospace Museum Site
NAS Fort Worth JRB, Texas

(Page 2 of 3)

Sample Location	Sample Name	Sample Number	Date Sampled	Sample Depth[1]	Analytical Suite
Phase 1 Confirmation Samples from Initial Excavation (Continued)					
S55C-W2	S55C-W2-SS-BM0080-REG	BM0080	18-Jul-01	1 5-2 0'	Lead by SW6010B
	S55C-W2-SO-BM0081-REG	BM0081	18-Jul-01	4 5-5 0'	Lead by SW6010B
	S55C-W2-SO-BM0082-FD	BM0082	18-Jul-01	4 5-5 0'	Lead by SW6010B
	S55C-W2-SO-BM0083-REG	BM0083	18-Jul-01	7 5-8 0'	Lead by SW6010B
S55C-C1	S55C-C1-SO-BM0084-REG	BM0084	18-Jul-01	5 0-5 5'	Lead by SW6010B
	S55C-C1-SO-BM0085-REG	BM0085	18-Jul-01	7 5-8 0'	Lead by SW6010B
Phase 2 Confirmation Samples					
S55C-V1	S55C-V1-SS-BM0097-REG	BM0097	26-Jul-01	0 0-2 0'	Lead by SW6010B & SPLP Lead by SW1312/SW6010B
S55C-V2	S55C-V2-SS-BM0098-REG	BM0098	26-Jul-01	0 0-2 0'	Lead by SW6010B & SPLP Lead by SW1312/SW6010B
	S55C-V2-SS-BM0098FD-FD	BM0098FD	26-Jul-01	0 0-2 0'	Lead by SW6010B & SPLP Lead by SW1312/SW6010B
S55C-V3	S55C-V3-SS-BM0104-REG	BM0104	26-Jul-01	0 0-2 0'	Lead by SW6010B & SPLP Lead by SW1312/SW6010B
	S55C-V3-SS-BM0104MS-MS	BM0104MS	26-Jul-01	0 0-2 0'	Lead by SW6010B
	S55C-V3-SS-BM0104MSD-MSD	BM0104MSD	26-Jul-01	0 0-2 0'	Lead by SW6010B
S55C-V5	S55C-V5-SS-BM0099-REG	BM0099	26-Jul-01	0 0-2 0'	Lead by SW6010B & SPLP Lead by SW1312/SW6010B
S55C-V6	S55C-V6-SS-BM0103-REG	BM0103	26-Jul-01	0 0-2 0'	Lead by SW6010B & SPLP Lead by SW1312/SW6010B
S55C-V7	S55C-V7-SS-BM0100-REG	BM0100	26-Jul-01	0 0-2 0'	Lead by SW6010B & SPLP Lead by SW1312/SW6010B
S55C-V8	S55C-V8-SO-BM0101-REG	BM0101	26-Jul-01	3 0-3 0'	Lead by SW6010B
S55C-V9	S55C-V9-SO-BM0102-REG	BM0102	26-Jul-01	3 0-3 0'	Lead by SW6010B
Phase 3 Confirmation Soil Samples					
S55C-VN1	S55C-VN1-SO-BM0116-REG	BM0116	21-Aug-01	0 0-4 0'	Lead by SW6010B
S55C-VN2	S55C-VN2-SO-BM0117-REG	BM0117	21-Aug-01	0 0-4 0'	Lead by SW6010B
	S55C-VN2-SO-BM0118-FD	BM0118	21-Aug-01	0 0-4 0'	Lead by SW6010B
S55C-VE1	S55C-VE1-SO-BM0119-REG	BM0119	20-Aug-01	0 0-3 0'	Lead by SW6010B
	S55C-VE1-SO-BM0119MS-MS	BM0119MS	20-Aug-01	0 0-3 0'	Lead by SW6010B
	S55C-VE1-SO-BM0119MSD-MSD	BM0119MSD	20-Aug-01	0 0-3 0'	Lead by SW6010B
S55C-VE2	S55C-VE2-SO-BM0120-REG	BM0120	20-Aug-01	0 0-3 0'	Lead by SW6010B
S55C-VE3	S55C-VE3-SO-BM0121-REG	BM0121	21-Aug-01	0 0-4 0'	Lead by SW6010B
S55C-VE4	S55C-VE4-SO-BM0122-REG	BM0122	21-Aug-01	0 0-4 0'	Lead by SW6010B
S55C-VS1	S55C-VS1-SO-BM0123-REG	BM0123	21-Aug-01	0 0-3 0'	Lead by SW6010B
S55C-VS2	S55C-VS2-SO-BM0124-REG	BM0124	21-Aug-01	0 0-3 0'	Lead by SW6010B
S55C-VW1	S55C-VW1-SO-BM0125-REG	BM0125	23-Aug-01	0 0-3 0'	Lead by SW6010B
S55C-VW2	S55C-VW2-SO-BM0126-REG	BM0126	23-Aug-01	0 0-3 0'	Lead by SW6010B
S55C-VW3	S55C-VW3-SO-BM0127-REG	BM0127	23-Aug-01	0 0-3 0'	Lead by SW6010B
	S55C-VW3-SO-BM0128-FD	BM0128	23-Aug-01	0 0-3 0'	Lead by SW6010B
S55C-VW4	S55C-VW4-SO-BM0129-REG	BM0129	23-Aug-01	0 0-3 0'	Lead by SW6010B
S55C-VW5	S55C-VW5-SO-BM0132-REG	BM0132	23-Aug-01	0 0-3 0'	Lead by SW6010B
S55C-VF1	S55C-VF1-SO-BM0131-REG	BM0131	21-Aug-01	4 0-4 5'	Lead by SW6010B
September 2001 Soil Samples Near Spur 341					
S55C-FL1	S55C-FL1-SO-BM0132A-REG	BM0132A	6-Sep-01	1 0-1 5'	Lead by SW6010B
S55C-FL0	S55C-FL0-SO-BM0133-REG	BM0133	6-Sep-01	1 0-1 5'	Lead by SW6010B
S55C-W1-0	S55C-W1-0-SO-BM0134-REG	BM0134	6-Sep-01	1 0-1 5'	Lead by SW6010B
S55C-W1-1	S55C-W1-1-SO-BM0135-REG	BM0135	6-Sep-01	1 0-1 5'	Lead by SW6010B
S55C-W1-2	S55C-W1-2-SO-BM0136-REG	BM0136	6-Sep-01	1 0-1 5'	Lead by SW6010B
S55C-W1-3	S55C-W1-3-SO-BM0137-REG	BM0137	6-Sep-01	1 0-1 5'	Lead by SW6010B
S55C-W1-4	S55C-W1-4-SO-BM0138-REG	BM0138	6-Sep-01	1 0-1 5'	Lead by SW6010B
S55C-W1-5	S55C-W1-5-SO-BM0139-REG	BM0139	6-Sep-01	1.0-1 5'	Lead by SW6010B
S55C-W2-0	S55C-W2-0-SO-BM0140-REG	BM0140	6-Sep-01	1 0-1 5'	Lead by SW6010B
S55C-W2-1	S55C-W2-1-SO-BM0141-REG	BM0141	6-Sep-01	1 0-1 5'	Lead by SW6010B
S55C-W2-2	S55C-W2-2-SO-BM0142-REG	BM0142	6-Sep-01	1 0-1 17'	Lead by SW6010B
S55C-W2-3	S55C-W2-3-SO-BM0143-REG	BM0143	6-Sep-01	1 0-1 25'	Lead by SW6010B
S55C-W2-4	S55C-W2-4-SO-BM0144-REG	BM0144	6-Sep-01	1 0-1 5'	Lead by SW6010B
S55C-W3-0	S55C-W3-0-SO-BM0145-REG	BM0145	6-Sep-01	1 0-1 5'	Lead by SW6010B
S55C-W3-1	S55C-W3-1-SO-BM0146-REG	BM0146	6-Sep-01	1 0-1 5'	Lead by SW6010B
S55C-W3-2	S55C-W3-2-SO-BM0147-REG	BM0147	6-Sep-01	1 0-1 5'	Lead by SW6010B
S55C-W3-3	S55C-W3-3-SO-BM0148-REG	BM0148	6-Sep-01	1 0-1 5'	Lead by SW6010B

Table 3-1

Summary of Soil Samples and Analyses During 2001 Excavation Activities
Aerospace Museum Site
NAS Fort Worth JRB, Texas

(Page 3 of 3)

Sample Location	Sample Name	Sample Number	Date Sampled	Sample Depth[1]	Analytical Suite
September 2001 Soil Samples Near Spur 341					
341-W1	341-W1-SS-BM0149-REG	BM0149	20-Sep-01	0 0-1 0'	Lead by SW6010B
341-W2	341-W2-SS-BM0150-REG	BM0150	20-Sep-01	0 0-1 0'	Lead by SW6010B
341-W3	341-W3-SS-BM0151-REG	BM0151	20-Sep-01	0 0-1 0'	Lead by SW6010B

[1] Sample Depth is in feet below ground surface
REG - Field sample
FD - Field duplicate
MS - Matrix spike
MSD - MS duplicate
SPLP - Synthetic precipitation leaching procedure

Table 3-2

Summary of 2001 Analytical Detections in Soil Compared to Background and MSCs
Aerospace Museum Site
NAS Fort Worth JRB, Texas

Location	Sample No	Sample Date	Start Depth (ft bgs)	End Depth (ft bgs)	Parameter	Reporting Limit (mg/kg)	Result (mg/kg)	Laboratory Qualifier	Validation Qualifier	Background UTL[1] (mg/kg)	Does Result Support Closure Under RRS 1?	TNRCC MSC[2] (mg/kg)	Does Result Support Closure Under RRS 2?
Phase 1 Confirmation Samples													
North Wall	BM0042	23-May-01	0	3	Lead	1 1	248		nv	30 97	No	1 5	No
West Wall	BM0043	23-May-01	0	3	Lead	1 1	105		nv	30 97	No	1 5	No
South Wall	BM0044	23-May-01	0	3	Lead	1 2	146		nv	30 97	No	1 5	No
East Wall	BM0045	23-May-01	0	3	Lead	1 2	107		nv	30 97	No	1 5	No
Floor	BM0046	23-May-01	3	3 5	Lead	1 2	76 2		nv	12 66	No	1 5	No
Preverification Samples - July 18, 2001													
S55C-C1	BM0084	18-Jul-01	5	5 5	Lead	1 1	10		J	12 66	Yes	1 5	NA
S55C-C1	BM0085	18-Jul-01	7 5	8	Lead	1 1	8 72		J	12 66	Yes	1 5	NA
S55C-E1	BM0057	18-Jul-01	1 5	2	Lead	1 1	65 3		J	30 97	No	1 5	No
S55C-E1	BM0058	18-Jul-01	4 5	5	Lead	1 2	12 5		J	12 66	Yes	1 5	NA
S55C-E1	BM0059	18-Jul-01	7 5	8	Lead	1 1	9 34		J	12 66	Yes	1 5	NA
S55C-E1	BM0060	18-Jul-01	7 5	8	Lead	1 1	10 5		J	12 66	Yes	1 5	NA
S55C-E2	BM0061	18-Jul-01	1 5	2	Lead	1	59 6		J	30 97	No	1 5	No
S55C-E2	BM0062	18-Jul-01	4 5	5	Lead	1 3	16 1		J	12 66	No	1 5	No
S55C-E2	BM0063	18-Jul-01	7 5	8	Lead	1 1	8 59		J	12 66	Yes	1 5	NA
S55C-E3	BM0064	18-Jul-01	1 5	2	Lead	1 1	31 7		J	30 97	No	1 5	No
S55C-E3	BM0065	18-Jul-01	4 5	5	Lead	1 1	11 4		J	12 66	Yes	1 5	NA
S55C-E3	BM0066	18-Jul-01	7 5	8	Lead	1 2	9 59		J	12 66	Yes	1 5	NA
S55C-N1	BM0047	18-Jul-01	1 5	2	Lead	1 2	165	M	J	30 97	No	1 5	No
S55C-N1	BM0048	18-Jul-01	4 5	5	Lead	1 2	13 5		J	12 66	No	1 5	No
S55C-N1	BM0049	18-Jul-01	7 5	8	Lead	1 1	5 83		J	12 66	Yes	1 5	NA
S55C-N1	BM0050	18-Jul-01	7 5	8	Lead	1 1	6 71		J	12 66	Yes	1 5	NA
S55C-N2	BM0051	18-Jul-01	1 5	2	Lead	1 1	108		J	30 97	No	1 5	No
S55C-N2	BM0052	18-Jul-01	4 5	5	Lead	1 2	12 4		J	12 66	Yes	1 5	NA
S55C-N2	BM0053	18-Jul-01	7 5	8	Lead	1 1	7 8		J	12 66	Yes	1 5	NA
S55C-N3	BM0054	18-Jul-01	1 5	2	Lead	1 1	210		J	30 97	No	1 5	No
S55C-N3	BM0055	18-Jul-01	4 5	5	Lead	1 1	11 4		J	12 66	Yes	1 5	NA
S55C-N3	BM0056	18-Jul-01	7 5	8	Lead	1 1	6 79		J	12 66	Yes	1 5	NA
S55C-S1	BM0067	18-Jul-01	1 5	2	Lead	1 1	217		J	30 97	No	1 5	No
S55C-S1	BM0068	18-Jul-01	4 5	5	Lead	1 1	8 96		J	12 66	Yes	1 5	NA
S55C-S1	BM0069	18-Jul-01	7 5	8	Lead	1 2	8 27		J	12 66	Yes	1 5	NA
S55C-S2	BM0070	18-Jul-01	1 5	2	Lead	1 1	17		J	30 97	Yes	1 5	NA
S55C-S2	BM0071	18-Jul-01	4 5	5	Lead	1 1	9 98		J	12 66	Yes	1 5	NA
S55C-S2	BM0072	18-Jul-01	4 5	5	Lead	1 2	7 67		J	12 66	Yes	1 5	NA
S55C-S2	BM0073	18-Jul-01	7 5	8	Lead	1 1	7 54		J	12 66	Yes	1 5	NA
S55C-S3	BM0074	18-Jul-01	1 5	2	Lead	1 1	17 6		J	30 97	Yes	1 5	NA
S55C-S3	BM0075	18-Jul-01	4 5	5	Lead	1 1	8 32		J	12 66	Yes	1 5	NA

Table 3-2

Summary of 2001 Analytical Detections in Soil Compared to Background and MSCs
Aerospace Museum Site
NAS Fort Worth JRB, Texas

Location	Sample No.	Sample Date	Start Depth (ft bgs)	End Depth (ft bgs)	Parameter	Reporting Limit (mg/kg)	Result (mg/kg)	Laboratory Qualifier	Validation Qualifier	Background UTL[1] (mg/kg)	Does Result Support Closure Under RRS 1?	TNRCC MSC[2] (mg/kg)	Does Result Support Closure Under RRS 2?
S55C-S3	BM0076	18-Jul-01	7 5	8	Lead	1 1	7 2		J	12 66	Yes	1 5	NA
S55C-W1	BM0077	18-Jul-01	1 5	2	Lead	1 1	5 16		J	30 97	Yes	1 5	NA
S55C-W1	BM0078	18-Jul-01	4 5	5	Lead	1 2	11 4	M	J	12 66	Yes	1 5	NA
S55C-W1	BM0079	18-Jul-01	7 5	8	Lead	1 1	7 37		J	12 66	Yes	1 5	NA
S55C-W2	BM0080	18-Jul-01	1 5	2	Lead	1	11 4		J	30 97	Yes	1 5	NA
S55C-W2	BM0081	18-Jul-01	4 5	5	Lead	1 2	12		J	12 66	Yes	1 5	NA
S55C-W2	BM0082	18-Jul-01	4 5	5	Lead	1 2	12 9		J	12 66	No	1 5	No
S55C-W2	BM0083	18-Jul-01	7 5	8	Lead	1 1	9 15		J	12 66	Yes	1 5	NA
Preverification Samples - July 23, 2001													
S55C-N4	BM0092	23-Jul-01	1 5	2	Lead	1 1	122		nv	30 97	No	1 5	No
S55C-N5	BM0093	23-Jul-01	1.5	2	Lead	1	242		nv	30 97	No	1 5	No
S55C-N6	BM0094	23-Jul-01	1 5	2	Lead	1 1	189		nv	30 97	No	1 5	No
S55C-NE1	BM0095	23-Jul-01	1 5	2	Lead	1 1	16 1		nv	30 97	Yes	1 5	NA
S55C-NW1	BM0096	23-Jul-01	1 5	2	Lead	1 1	113		nv	30 97	No	1 5	No
Preverification Samples - July 26, 2001													
S55C-N7	BM0107	26-Jul-01	0	2	Lead	1 1	94 3		nv	30 97	No	1 5	No
S55C-N8	BM0108	26-Jul-01	0	2	Lead	1.1	12 3		nv	30 97	Yes	1 5	NA
S55C-N9	BM0109	26-Jul-01	0	2	Lead	1 1	18 1		nv	30 97	Yes	1 5	NA
S55C-N10	BM0110	26-Jul-01	0	2	Lead	1 1	13 5		nv	30 97	Yes	1 5	NA
S55C-N11	BM0111	26-Jul-01	0	2	Lead	1 2	21		nv	30 97	Yes	1 5	NA
S55C-NE2	BM0112	26-Jul-01	0	2	Lead	1 1	13 2		nv	30 97	Yes	1 5	NA
S55C-NE3	BM0114	26-Jul-01	0	2	Lead	1 1	26 3		nv	30 97	Yes	1 5	NA
S55C-NE3	BM0114FD	26-Jul-01	0	2	Lead	1 1	22 7		nv	30 97	Yes	1 5	NA
S55C-NW2	BM0113	26-Jul-01	0	2	Lead	1 1	14 3		nv	30 97	Yes	1 5	NA
S55C-NW3	BM0115	26-Jul-01	0	2	Lead	1 2	15 2		nv	30 97	Yes	1 5	NA
Phase 2 Confirmation Samples													
S55C-V1	BM0097	26-Jul-01	0	2	Lead	1 1	128		nv	30 97	No	1 5	No
S55C-V2	BM0098	26-Jul-01	0	2	Lead	1	80 5		nv	30 97	No	1 5	No
S55C-V2	BM0098FD	26-Jul-01	0	2	Lead	1 1	105		nv	30 97	No	1 5	No
S55C-V3	BM0104	26-Jul-01	0	2	Lead	1 1	58 9		nv	30 97	No	1 5	No
S55C-V5	BM0099	26-Jul-01	0	2	Lead	5 4	203		nv	30 97	No	1 5	No
S55C-V6	BM0103	26-Jul-01	0	2	Lead	1 1	381		nv	30 97	No	1 5	No
S55C-V7	BM0100	26-Jul-01	0	2	Lead	1 1	82 7		nv	30 97	No	1 5	No
S55C-V8	BM0101	26-Jul-01	3	3	Lead	1 2	14 9		nv	12 66	No	1 5	No
S55C-V9	BM0102	26-Jul-01	3	3	Lead	1 1	9 65		nv	12 66	Yes	1 5	NA

Table 3-2

Summary of 2001 Analytical Detections in Soil Compared to Background and MSCs
Aerospace Museum Site
NAS Fort Worth JRB, Texas

Location	Sample No.	Sample Date	Start Depth (ft bgs)	End Depth (ft bgs)	Parameter	Reporting Limit (mg/kg)	Result (mg/kg)	Laboratory Qualifier	Validation Qualifier	Background UTL[1] (mg/kg)	Does Result Support Closure Under RRS 1?	TNRCC MSC[2] (mg/kg)	Does Result Support Closure Under RRS 2?
Phase 3 Confirmation Samples													
S55C-VE1	BM0119	20-Aug-01	0	3	Lead	1 1	24 8		J	12 66	No	1 5	No
S55C-VE2	BM0120	20-Aug-01	0	3	Lead	1 1	12 9		J	12 66	No	1 5	No
S55C-VE3	BM0121	21-Aug-01	0	4	Lead	1 1	10 8		J	12 66	Yes	1 5	NA
S55C-VE4	BM0122	21-Aug-01	0	4	Lead	1 1	11 7		J	12 66	Yes	1 5	NA
S55C-VF1	BM0131	21-Aug-01	4	4 5	Lead	1 1	9 2		J	12 66	Yes	1 5	NA
S55C-VN1	BM0116	21-Aug-01	0	4	Lead	1 1	23 6		J	12 66	No	1 5	No
S55C-VN2	BM0117	21-Aug-01	0	4	Lead	1 1	14 9		J	12 66	No	1 5	No
S55C-VN2	BM0118	21-Aug-01	0	4	Lead	1 1	11 5		J	12 66	Yes	1 5	NA
S55C-VS1	BM0123	21-Aug-01	0	3	Lead	1 1	28 4		J	12 66	No	1 5	No
S55C-VS2	BM0124	21-Aug-01	0	3	Lead	1 1	12 8		J	12 66	No	1 5	No
S55C-VW1	BM0125	23-Aug-01	0	3	Lead	1 1	143		J	12 66	No	1 5	No
S55C-VW2	BM0126	23-Aug-01	0	3	Lead	1 1	130		J	12 66	No	1 5	No
S55C-VW3	BM0127	23-Aug-01	0	3	Lead	1 1	214		J	12 66	No	1 5	No
S55C-VW3	BM0128	23-Aug-01	0	3	Lead	1 1	275		J	12 66	No	1 5	No
S55C-VW4	BM0129	23-Aug-01	0	3	Lead	1 2	42 2		J	12 66	No	1 5	No
S55C-VW5	BM0132	23-Aug-01	0	3	Lead	1 2	114			12 66	No	1 5	No
S55C-VW5	BM0132	23-Aug-01	0	3	Lead	1 2	56 6		J	12 66	No	1 5	No
September 2001 Soil Samples Along Spur 341													
S55C-FL0	BM0133	6-Sep-01	1	1 5	Lead	1 4	106			30 97	No	1 5	No
S55C-W1-0	BM0134	6-Sep-01	1	1 5	Lead	1 4	165			30 97	No	1 5	No
S55C-W1-1	BM0135	6-Sep-01	1	1 5	Lead	1 2	98 3			30 97	No	1 5	No
S55C-W1-2	BM0136	6-Sep-01	1	1 5	Lead	1 1	232			30 97	No	1 5	No
S55C-W1-3	BM0137	6-Sep-01	1	1 5	Lead	1 3	93 3			30 97	No	1 5	No
S55C-W1-4	BM0138	6-Sep-01	1	1 5	Lead	1 4	68 9			30 97	No	1 5	No
S55C-W1-5	BM0139	6-Sep-01	1	1 5	Lead	1 3	3 3			30 97	Yes	1 5	NA
S55C-W2-0	BM0140	6-Sep-01	1	1 5	Lead	1 4	44 2			30 97	No	1 5	No
S55C-W2-1	BM0141	6-Sep-01	1	1 5	Lead	1 1	34 5			30 97	No	1 5	No
S55C-W2-2	BM0142	6-Sep-01	1	1 2	Lead	1 2	85 3			30 97	No	1 5	No
S55C-W2-3	BM0143	6-Sep-01	1	1 25	Lead	1 1	60 9			30 97	No	1 5	No
S55C-W2-4	BM0144	6-Sep-01	1	1 5	Lead	1 3	55 3			30 97	No	1 5	No
S55C-W3-0	BM0145	6-Sep-01	1	1 5	Lead	1 1	12 7			30 97	Yes	1 5	NA
S55C-W3-1	BM0146	6-Sep-01	1	1 5	Lead	1 1	144			30 97	No	1 5	No
S55C-W3-2	BM0147	6-Sep-01	1	1 5	Lead	1 1	45 3			30 97	No	1 5	No
S55C-W3-3	BM0148	6-Sep-01	1	1 5	Lead	1 1	75 6			30 97	No	1 5	No

Table 3-2

Summary of 2001 Analytical Detections in Soil Compared to Background and MSCs
Aerospace Museum Site
NAS Fort Worth JRB, Texas

Location	Sample No.	Sample Date	Start Depth (ft bgs)	End Depth (ft bgs)	Parameter	Reporting Limit (mg/kg)	Result (mg/kg)	Laboratory Qualifier	Validation Qualifier	Background UTL[1] (mg/kg)	Does Result Support Closure Under RRS 1?	TNRCC MSC[2] (mg/kg)	Does Result Support Closure Under RRS 2?
341-W1	BM0149	21-Sep-01	0	1	Lead	5 7	141			30 97	No	1 5	No
341-W2	BM0150	21-Sep-01	0	1	Lead	1 1	53 8			30 97	No	1 5	No
341-W3	BM0151	21-Sep-01	0	1	Lead	1 2	71 9			30 97	No	1 5	No

MSC = Medium-Specific Concentration
NA = Not applicable
RRS 1 = Risk Reduction Standard 1
RRS 2 = Risk Reduction Standard 2
TNRCC = Texas Natural Resources Conservation Commission
UTL = Upper Tolerance Limit
nv = not validated

Footnotes:

[1] UTLs for inorganics derived from Final Draft Basewide Background Study, Jacobs Engineering, 1998

[2] TNRCC, 1999, "Updated Examples of Standard No 2, Appendix II Media-Specific Concentrations (MSCs) - Industrial Setting", July 14

Qualifier Definitions:

= The analyte was positively identified
J = For inorganics, the associated value is an estimated quantity For organics, the analyte was positively identified, the associated numerical value is the approximate concentration of the analyte in the sample
M = A matrix effect was present

Table 3-3

Summary of 2001 SPLP Analytical Detections in Soil Compared to Background and MSCs
Aerospace Museum Site
NAS Fort Worth JRB, Texas

Location	Sample No.	Sample Date	Start Depth (ft bgs)	End Depth (ft bgs)	Parameter	Reporting Limit (mg/L)	Result (mg/L)	Laboratory Qualifier	Validation Qualifier	Background UTL[1] (mg/L)	Does Result Support Closure Under RRS 1?	TNRCC MSC[2] (mg/L)	Does Result Support Closure Under RRS 2?
North Wall	BM0042	23-May-01	0	3	SPLP - Lead	0 005	0 0068		nv	0 0016	No	0 015	No
West Wall	BM0043	23-May-01	0	3	SPLP - Lead	0 005	0 026		nv	0 0016	No	0 015	No
South Wall	BM0044	23-May-01	0	3	SPLP - Lead	0 005	0 016		nv	0 0016	No	0 015	No
East Wall	BM0045	23-May-01	0	3	SPLP - Lead	0 005	0 013		nv	0 0016	No	0 015	Yes
Floor	BM0046	23-May-01	3	3 5	SPLP - Lead	0 005	0 047		nv	0 0016	No	0 015	No
S55C-N7	BM0107	26-Jul-01	0	2	SPLP - Lead	0 005	0 073		nv	0 0016	No	0 015	No
S55C-V1	BM0097	26-Jul-01	0	2	SPLP - Lead	0 005	0 014		nv	0 0016	No	0 015	Yes
S55C-V2	BM0098	26-Jul-01	0	2	SPLP - Lead	0 005	0 093		nv	0 0016	No	0 015	No
S55C-V2	BM0098FD	26-Jul-01	0	2	SPLP - Lead	0 005	0 046		nv	0 0016	No	0 015	No
S55C-V3	BM0104	26-Jul-01	0	2	SPLP - Lead	0 005	0 097		nv	0 0016	No	0 015	No
S55C-V5	BM0099	26-Jul-01	0	2	SPLP - Lead	0 005	0 0086		nv	0 0016	No	0 015	Yes
S55C-V6	BM0103	26-Jul-01	0	2	SPLP - Lead	0 005	0 036		nv	0 0016	No	0 015	No
S55C-V7	BM0100	26-Jul-01	0	2	SPLP - Lead	0 005	0 074		nv	0 0016	No	0 015	No

MSC = Medium-Specific Concentration
NA = Not applicable
RRS 1 = Risk Reduction Standard 1
RRS 2 = Risk Reduction Standard 2
SPLP = Synthetic precipitation leaching procedure
TNRCC = Texas Natural Resources Conservation Commission
UTL = Upper Tolerance Limit
nv = not validated

Footnotes.

[1] UTLs for inorganics derived from Final Draft Basewide Background Study, Jacobs Engineering, 1998

[2] TNRCC, 1999, "Updated Examples of Standard No 2, Appendix II Media-Specific Concentrations (MSCs) - Industrial Setting", July 14

Qualifier Definitions:

= The analyte was positively identified

Table 3-4

Summary of September 2001 XRF Results
Aerospace Museum Site
NAS Fort Worth JRB, Texas

Sample			Lead Results (mg/kg)		
			XRF[1]		
Location	Number	Depth (in. bgs)	Det Conc +/- Std	Qualified Result	Offsite Lab
FL1	BM0132A	12-18	103 +/- 21	103 J	NA
FL0	BM0133	12-18	58 5 +/- 21	63 U	106
W1,0	BM0134	12-18	153 +/- 22	153 J	165
W1,1	BM0135	12-18	98 8 +/- 23	98 8 J	98 3
W1,2	BM0136	12-18	172 +/- 24	172 J	232
W1,3	BM0137	12-18	127 +/- 29	127 J	93 3
W1,4	BM0138	12-18	117 +/- 24	117 J	68 9
W1,5	BM0139	12-18	50 1 +/- 18	54 U	3 3
W2,0	BM0140	12-18	36 +/- 19	57 U	44 2
W2,1	BM0141	12-18	41 9 +/- 17	51 U	34.5
W2,2	BM0142	12-14	75 9 +/- 20	75 9 J	85 3
W2,3	BM0143	12-15	85 4 +/- 19	85 4 J	60 9
W2,4	BM0144	12-18	74.7 +/- 18	74 7 J	55 3
W3,0	BM0145	12-18	< 23	23 U	12 7
W3,1	BM0146	12-18	132 +/- 22	132 J	144
W3,2	BM0147	12-18	82 +/- 19	82 J	45 3
W3,3	BM0148	12-18	58 4 +/- 15	58.4 J	75 6

[1] The detected concentration and its associated standard deviation are given in the first column The qualified result is the interpreted result based on the following guidelines

- Concentrations that are <3x their standard deviations are considered not detected and 3x the standard deviation is used as the reporting limit
- Concentrations that are <10x their standard deviations are considered detected but their concentration is estimated

Where

NA - not analyzed

U - not detected and the reporting limit is shown.

J - lead was detected but it's concentration is considered estimated

FIGURES

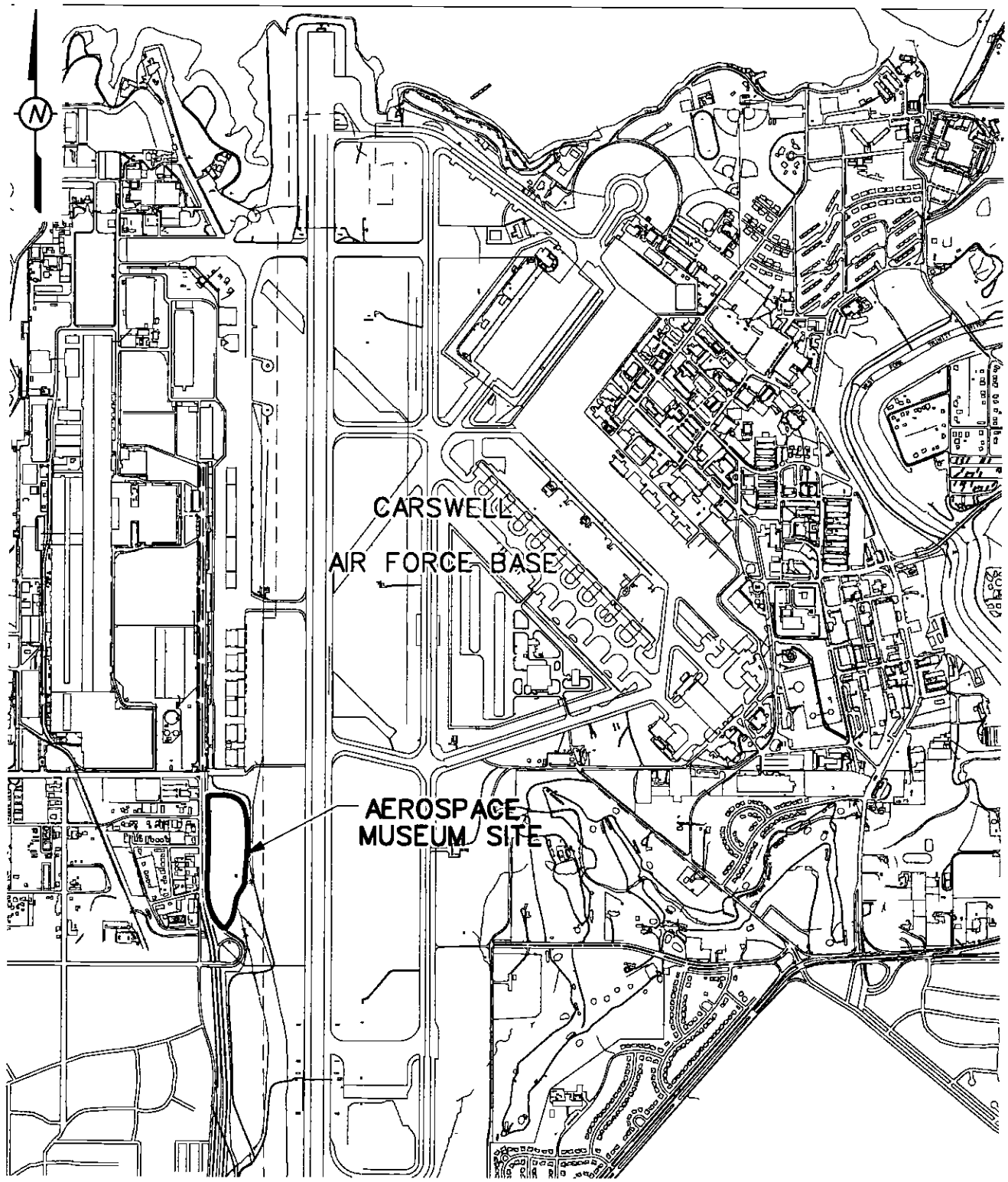


FIGURE 1-1
AEROSPACE MUSEUM SITE
LOCATION MAP

NAS FORT WORTH, JRB
FORT WORTH, TEXAS

SCALE:

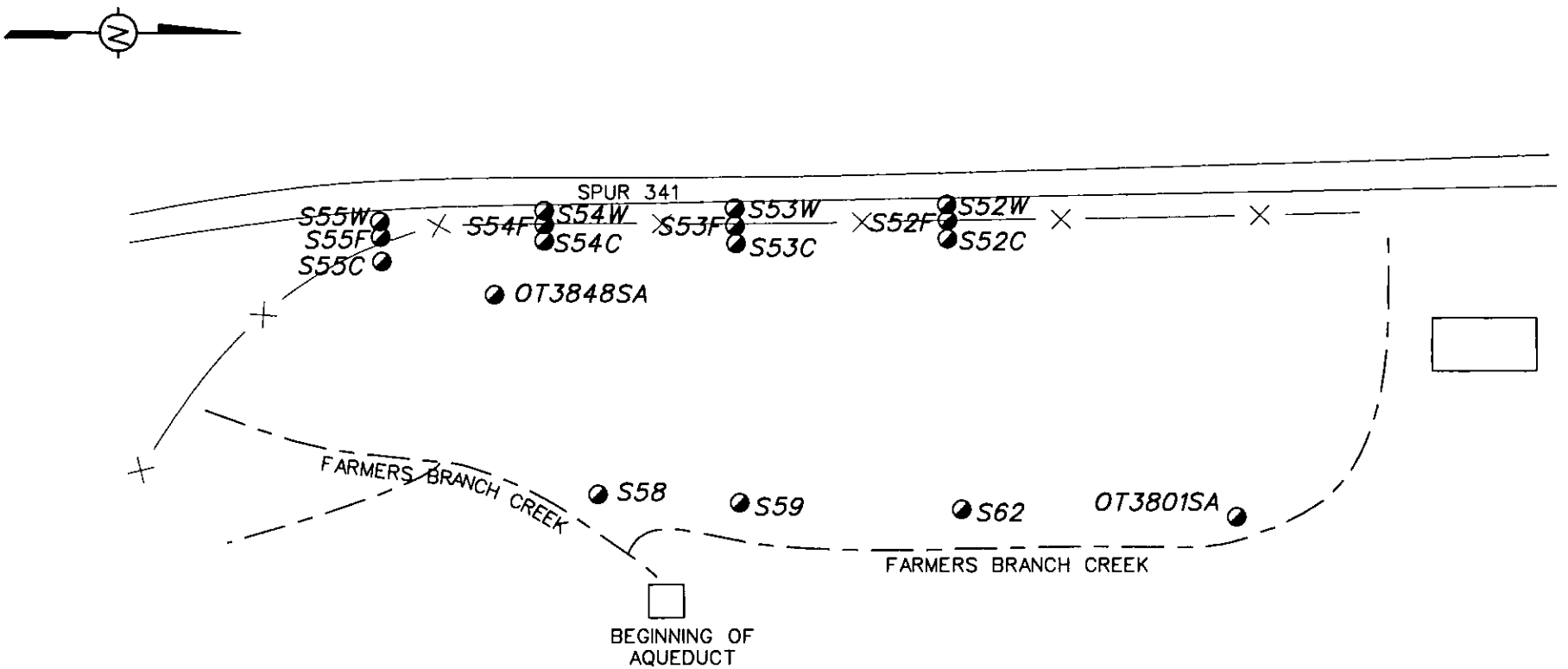
0 20,000 40,000 FEET

IT CORPORATION
A Member of The IT Group

STARTING DATE 04/10/01	DATE LAST REV 09/26/01	DRAFT CHCK BY M HALL		INITIATOR B SUMMERS	DWG NO. \768579ES. 268
DRAWN BY M HALL	DRAWN BY BVANDERG	ENGR CHCK BY B SUMMERS		PROJ MGR W CARTER	PROJ NO 768579

08: 48: 05
09/26/01
BVANDERG
C: \CADD\DESIGN\768579ES. 268

bvanderg 08 44 48	STARTING DATE 4/4/01	DATE LAST REV 09/26/01	DRAFT CHCK BY M HALL	INITIATOR B SUMMERS	DWG NO \768579es 267
c \cadd\design\768579es 267 09/26/01	DRAWN BY M HALL	DRAWN BY bvanderg	ENGR CHCK BY B SUMMERS	PROJ MGR W CARTER	PROJ NO 768579



LEGEND:

SAMPLING LOCATIONS

FENCE

SCALE:

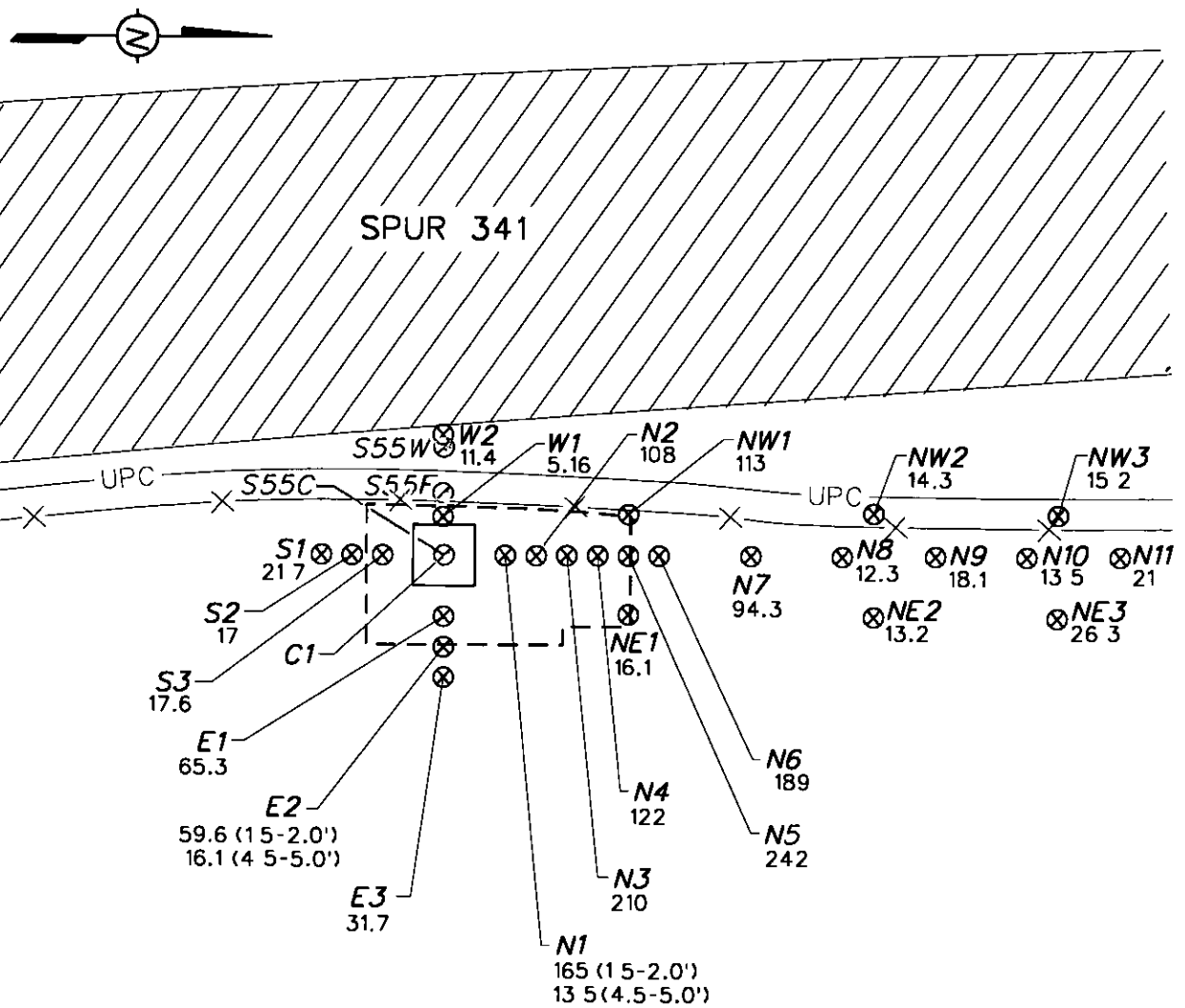
0 300 600 FEET

FIGURE 2-1
AEROSPACE MUSEUM SITE
DECEMBER 2000 SAMPLE LOCATIONS

NAS FORT WORTH, JRB
FORT WORTH, TEXAS

IT CORPORATION
A Member of The IT Group

bvanderg 03 08 51	STARTING DATE 7/16/01	DATE LAST REV 09/26/01	DRAFT CHCK BY M HALL	INITIATOR W CARTER	DWG NO \768579es 301
c \cadd\design\768579es 301 09/26/01	DRAWN BY M HALL	DRAWN BY bvanderg	ENGR CHCK BY W CARTER	PROJ MGR W CARTER	PROJ NO 768579



SCALE:

0 30 60 FEET

LEGEND:

- PHASE 1 EXCAVATION LIMITS
- PHASE 2 EXCAVATION LIMITS
- HAND AUGER LOCATIONS AT 5' INTERVALS
- DECEMBER 2000 SAMPLING LOCATION
- FENCE
- UPC — UNDERGROUND PHONE CABLE
- 113 — LEAD RESULTS (mg/kg) EXCEEDING BACKGROUND

NOTES:

1. SAMPLE CORRELATION NAME S55C-XXXX-SO-BM00YY XX-EAST (E), WEST (W), NORTH (N), SOUTH (S), CENTER (C)
2. SAMPLE RESULTS FROM 1.5-2.0 FEET BGS UNLESS NOTED

FIGURE 3-1

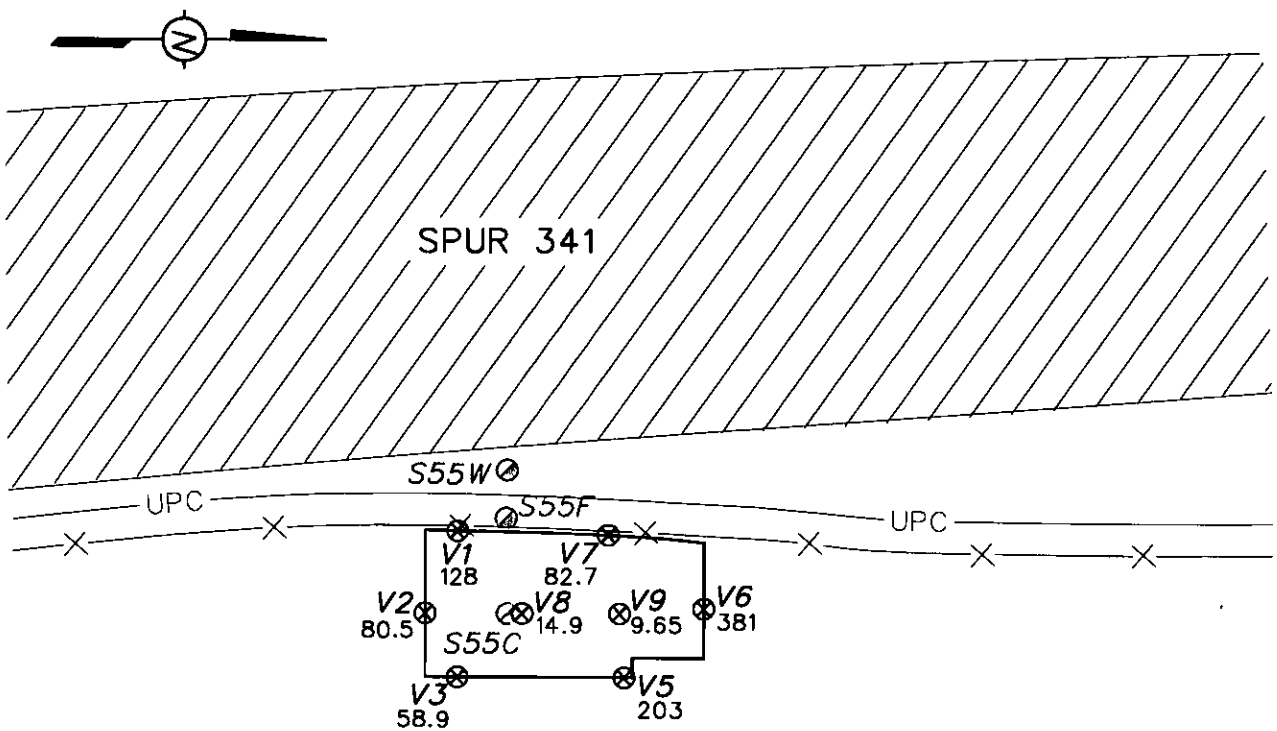
PHASE 1 AND 2 EXCAVATION LIMITS AND PHASE 3 PREVERIFICATION SAMPLE RESULTS AEROSPACE MUSEUM SITE

NAS FORT WORTH, JRB
FORT WORTH, TEXAS

IT CORPORATION
A Member of The IT Group

698 40

bvanderg 08 51 48	STARTING DATE 7/24/01	DATE LAST REV 09/26/01	DRAFT CHCK BY M HALL	INITIATOR W CARTER	DWG. NO \768579es 300
c \cadd\design\768579es 300 09/26/01	DRAWN BY M HALL	DRAWN BY bvanderg	ENGR CHCK BY W CARTER	PROJ MGR W CARTER	PROJ NO. 768579



LEGEND:

- AREA OF PHASE 2 SOIL REMOVAL
- CONFIRMATION SAMPLE SIDEWALL AND FLOOR
- SAMPLING LOCATIONS FROM DEC. 2000
- FENCE
- UPC — UNDERGROUND PHONE CABLE

NOTES:

1. CONFIRMATION SAMPLES TAKEN ~ 1' ABOVE FLOOR ON SIDE WALLS AT APPROXIMATELY 20' INTERVALS. TWO FLOOR SAMPLES.
2. DEPTH VARIES BUT IS APPROXIMATELY 3' ON AVERAGE.
3. RESULTS FOR LEAD IN mg/kg

SCALE: 0 30 60 FEET

FIGURE 3-2

RESULTS FROM PHASE 2 CONFIRMATION SAMPLES AEROSPACE MUSEUM SITE

NAS FORT WORTH, JRB
FORT WORTH, TEXAS

IT CORPORATION
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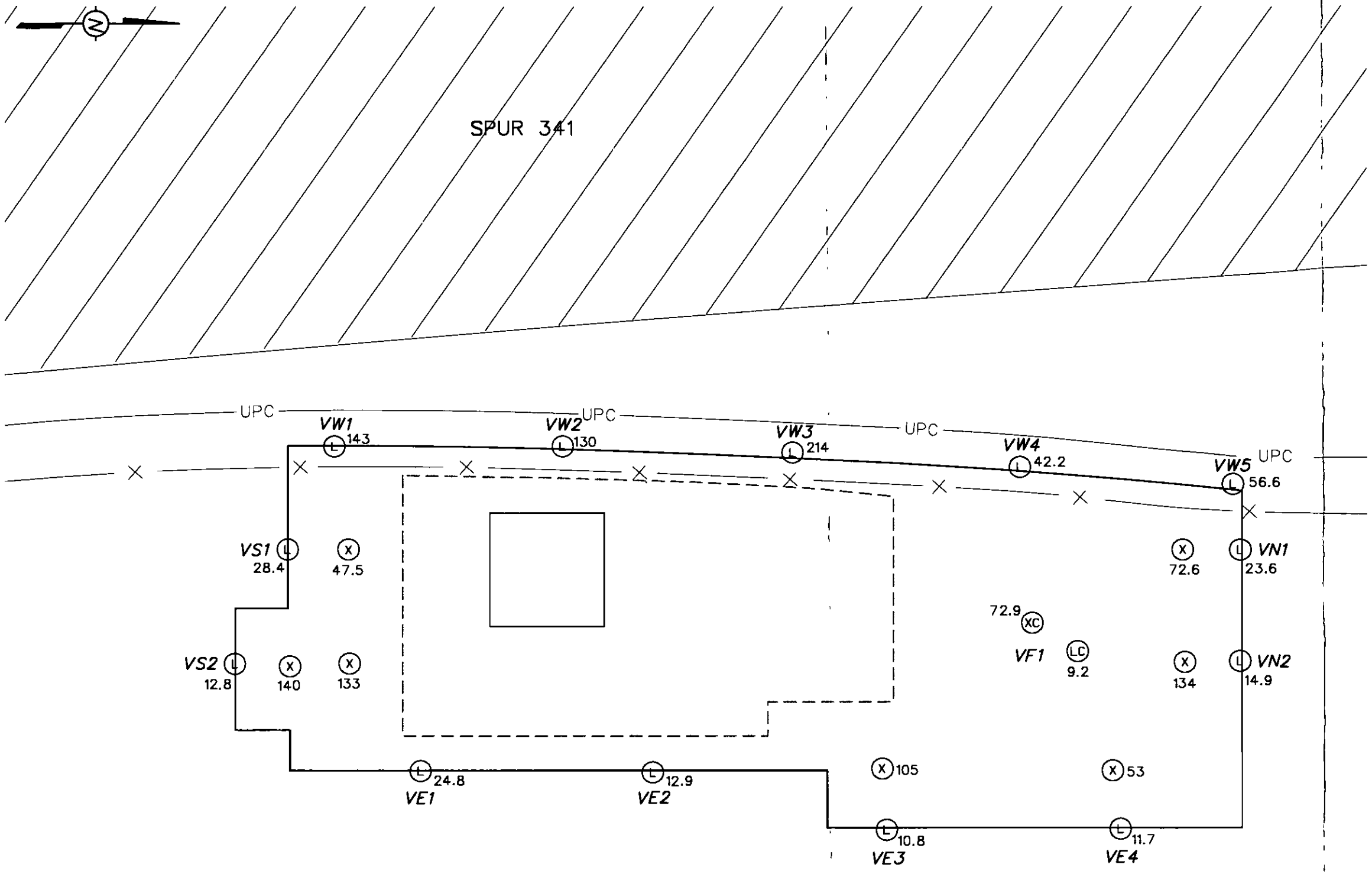


LEGEND:

- AREA OF PHASE 3 SOIL EXCAVATION (AUGUST 2001)
- AREA OF PREVIOUS REMOVALS
- FENCE
- UPC — UNDERGROUND PHONE CABLE
- (X) XRF SAMPLE FOR LEAD
- (XC) XRF COMPOSITE SAMPLE FOR LEAD
- (L) LABORATORY SAMPLE FOR LEAD
- (LC) LABORATORY COMPOSITE SAMPLE FOR LEAD

NOTES:

1. RESULTS FOR LEAD IN mg/kg

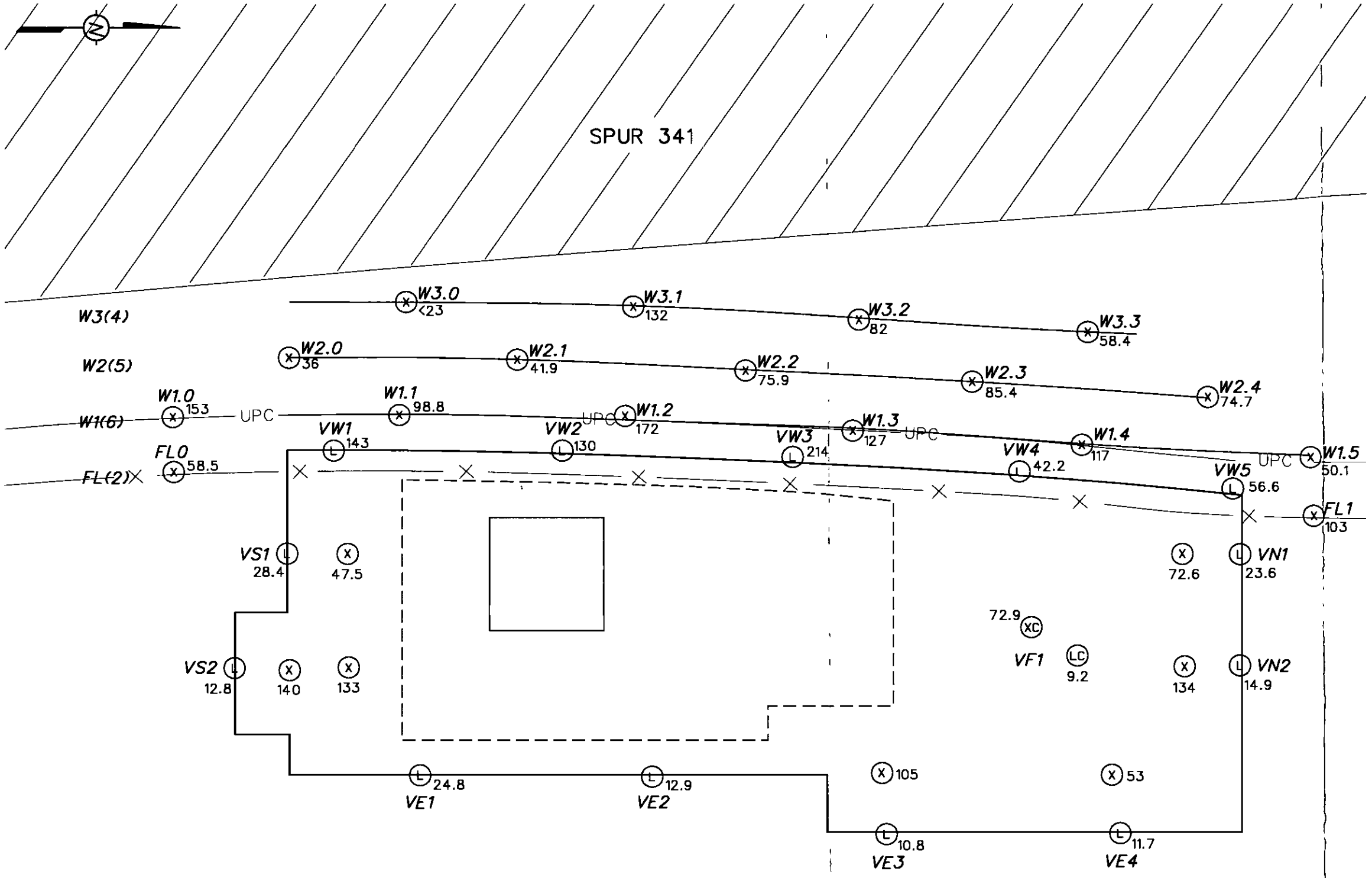
SCALE
0 10 20 FEET

FIGURE 3-3
RESULTS FROM PHASE 3 CONFIRMATION SAMPLES
AEROSPACE MUSEUM SITE

NAS FORT WORTH, JRB
FORT WORTH, TEXAS

IT CORPORATION
A Member of The IT Group

DRAWN BY B VANDERGRIFF	DATE LAST REV	INITIATOR R MCBRIDE	DWG NO. \768579es 306
STARTING DATE 08/29/01		PROJ MGR L TYNER	PROJ NO 768579
DRAWN BY	DATE	ENGR CHCK BY R MCBRIDE	
bvanderg	09 07 06	DRAFT CHCK BY C TUMLIN	
c \cadd\design\768579es 306	09/26/01		



LEGEND:

- AREA OF PHASE 3 SOIL EXCAVATION (AUGUST 2001)
- AREA OF PREVIOUS REMOVALS
- FENCE
- UPC — UNDERGROUND PHONE CABLE
- (X) XRF SAMPLE FOR LEAD
- (XC) XRF COMPOSITE SAMPLE FOR LEAD
- (L) LABORATORY SAMPLE FOR LEAD
- (LC) LABORATORY COMPOSITE SAMPLE FOR LEAD

NOTES:

1. RESULTS FOR LEAD IN mg/kg .

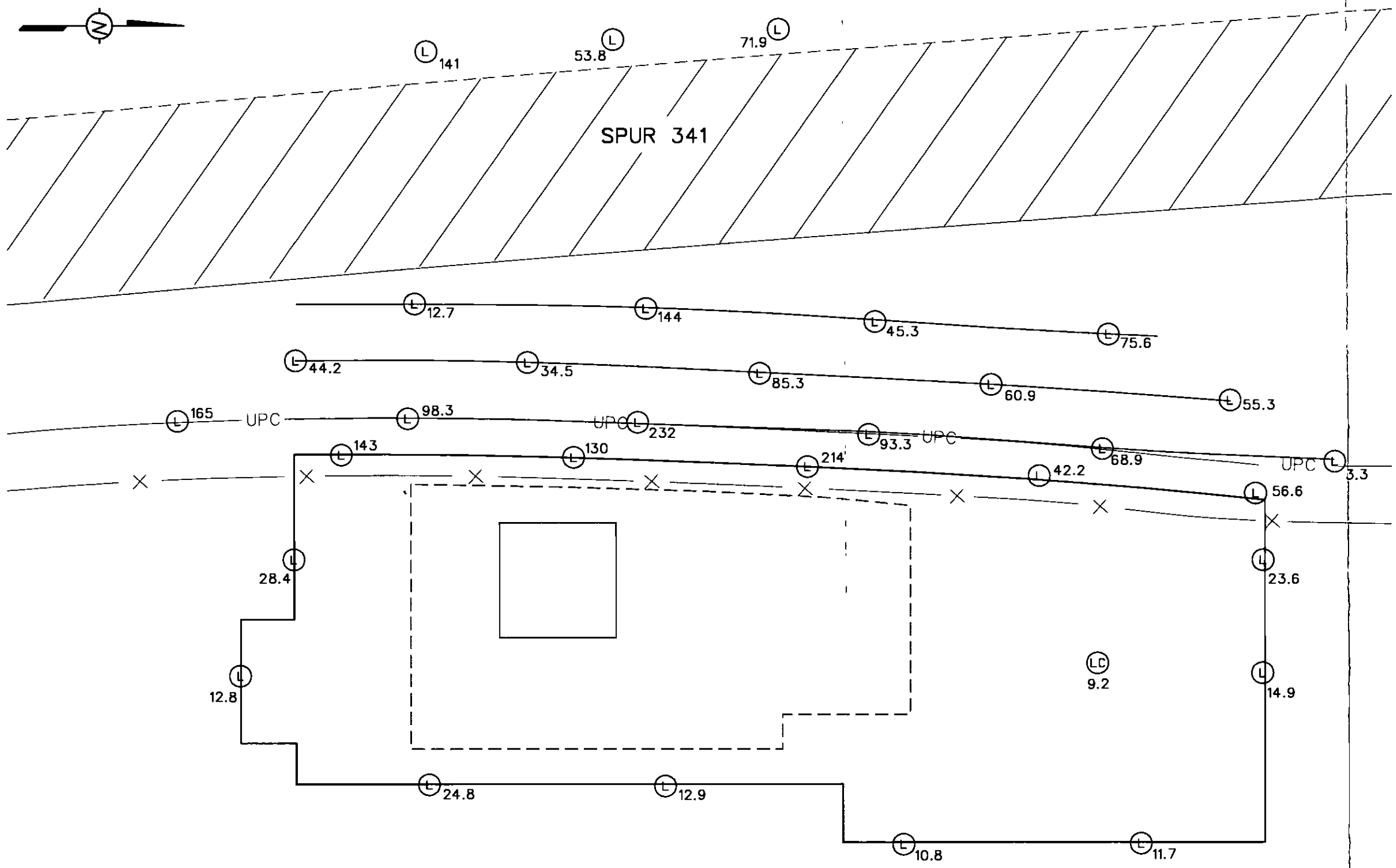
SCALE
0 10 20 FEET

FIGURE 3-4
FIELD SCREENING RESULTS
FOR SEPTEMBER 2001
SOIL SAMPLES
AEROSPACE MUSEUM SITE

NAS FORT WORTH, JRB
FORT WORTH, TEXAS

IT CORPORATION
A Member of The IT Group

DRAFT CHCK BY C TUMLIN | DWG NO. \768579es 307
ENGR CHCK BY R MCBRIDE | PROJ NO 768579
PROJ MGR L TYNER
INITIATOR R MCBRIDE
STARTING DATE 08/29/01
DRAWN BY B VANDERGRIFF
DATE LAST REV 09/26/01 09:10 46
DRAWN BY bvanderg
c:\cadd\design\768579es 307



LEGEND:

- AREA OF PHASE 3 SOIL EXCAVATION (AUGUST 2001)
- AREA OF PREVIOUS REMOVALS
- — X — FENCE
- — UPC — UNDERGROUND PHONE CABLE
- (L) LABORATORY SAMPLE FOR LEAD
- (LC) LABORATORY COMPOSITE SAMPLE FOR LEAD

NOTES:

1. RESULTS FOR LEAD IN mg/kg
2. WIDTH OF SPUR 341 IS NOT TO SCALE.

SCALE
0 10 20 FEET

FIGURE 3-5
ANALYTICAL RESULTS FOR SEPTEMBER 2001 SOIL SAMPLES
AEROSPACE MUSEUM SITE

NAS FORT WORTH, JRB
FORT WORTH, TEXAS

IT CORPORATION
A Member of The IT Group

DRAFT CHCK BY C TUMLIN | DWG NO. \768579es 308
ENGR CHCK BY R MCBRIDE | PROJ NO 768579
INITIATOR R MCBRIDE | DATE LAST REV
PROJ MGR L TYNER | DRAWN BY
STARTING DATE 08/29/01
DRAWN BY B VANDERGRIFF
03 10 55 09/26/01
bvanderg c:\cadd\design\768579es 308

TAB

APPENDIX A

APPENDIX A

PREVIOUS INVESTIGATIONS

Previous Investigations

The following previous investigations have been conducted at the Aerospace Museum Site (AMS) at the Naval Air Station (NAS) Fort Worth Joint Reserve Base (JRB), former Carswell Air Force Base, Texas.

October 1995, Site Investigation/Site Characterization, Law Engineering (LAW)

Forty-nine surface soil samples and two background samples were collected from 0 to 2 feet below ground surface (bgs) using stainless-steel hand augers at locations based on a grid layout (Figure A-1). The objective of the sampling was to determine the extent of surface contamination in soils resulting from previous site activities. The soil samples were analyzed for total metals, volatile organic compounds (VOC), and semivolatile organic compounds (SVOC).

Methylene chloride was detected in OT3804SA (0.00628 milligrams per kilogram [mg/kg]) below the medium-specific concentration (MSC) of 0.5 mg/kg. Toluene was detected in both background samples and 44 of 51 samples. The maximum toluene concentration detected in the background sample OT3851SA was 0.0302 mg/kg.

SVOCs were detected in soil samples and in background sample OT38504SA. Polynuclear aromatic hydrocarbons (PAH) were detected in 20 soil samples out of the 49 samples collected at the site. High levels of PAHs were reported in OT3801SA, OT3814Sa, and background sample OT3851SA. Phthalates were detected in several soil samples ad also in background sample OT3851SA.

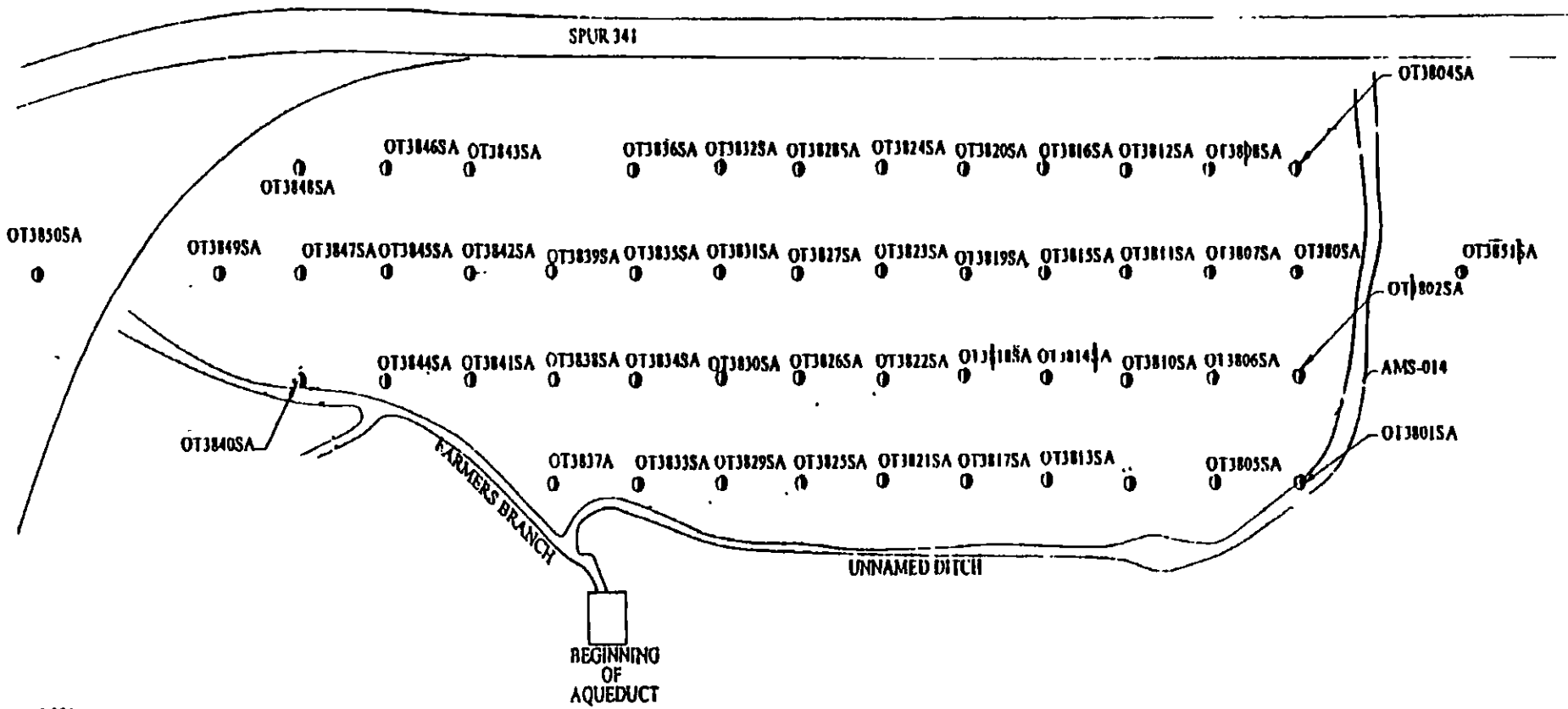
Sample data for metals were compared to the maximum values obtained from the background samples OT3850SA. Aluminum, antimony, arsenic, barium, beryllium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, molybdenum, nickel, potassium, sodium, vanadium, and zinc concentrations exceeded the maximum background concentrations.

June 1997, Demolition and Removal of Structures/Disposal of Transformers with PCB Oil, Unified Services of Texas, Inc. (UST, Inc)

UST, Inc. demolished and removed a wooden shed, an electrical equipment box, two old concrete blast shields, two concrete pads, one asphalt concrete pad, a mobile fuel test system, soil piles, a rubble pile, and loose railroad ties in the former AMS. The site was restored with clean backfill, compacted, and reseeded with native grass.

Figure A-1

Surface Soil Sampling Locations
October 1995, Law Engineering



LEGEND

o Surface soil sampling locations

0 120 240

SCALE IN FEET

January 1997, Basewide Background Study, Jacobs Engineering Group, Inc. (Jacobs)

Thirty surface soil, thirty subsurface soil, twelve groundwater, eight surface water, and eight stream sediment samples were collected to establish basewide background concentrations of inorganic constituents. The U.S. Environmental Protection Agency (EPA) Tolerance Interval (TI) method was used to calculate background concentrations in various matrices, including unfiltered groundwater samples, sediment samples, and organic constituents detected in surface and subsurface soil for organic and inorganic constituents.

In 1996, Jacobs compared the results reported in the LAW 1996 report to background concentrations reported in the Jacobs Basewide Background Study. According to the comparison, cadmium, chromium, cobalt, copper, and lead exceeded the upper tolerance limit $(UTL)_{95\,99}$ for surface soils. Although the general concentrations of metals exceeded background concentrations, only sample OT3840SA exceeded the background concentrations and the MSC of 1,000 mg/kg for lead. Further sampling was therefore recommended for lead.

Methylene chloride, a common laboratory contaminant , was detected below the MSC of 0.5 mg/kg. Low concentrations of toluene were detected throughout the site, and were concluded to be anthropogenic. Low concentrations of SVOCs were detected throughout the site and below the TNRCC Soil/Air and Ingestion for Industrial (SAI-Ind) MSC Standards. It was also concluded that PAHs represent anthropogenic background concentrations, and did not require additional sampling.

May 1997, Draft Letter Report for Results of Sampling at the Aerospace Museum Site, Jacobs

Twenty-seven soil samples were collected at the AMS to confirm the analytical results collected by LAW in October 1995 (Table A-1). Samples were analyzed for arsenic, beryllium, chromium, lead, nickel, and antimony. Leaching tests were also conducted on these samples using synthetic precipitation leaching procedure (SPLP). The results were compared to the RRS 2 SAI-Ind values. Arsenic, chromium, nickel, and antimony were not detected in any of the samples. Beryllium was above the RRS 2 Ground Water Industrial (GW-Ind) Standards of 0.004 milligrams per liter (mg/L), with a maximum concentration of 0.0144 mg/L. Lead concentrations ranged from 0.0206 to 0.0629 mg/L, and exceeded the RRS2 GW-Ind Standards of 0.015 mg/L.

Table A-1
Summary of Results from Soil Sampling at the Aerospace Museum Site

SAMPLE ID	SAMPLE INTERVAL	UNITS	ANALYTE	VALUE	PARVQ	MDL	PQL	LABQ	JEGQ	RRS2 Standard	Result Exceeds Standard?	MDL Exceeds Standard?
AMS-001	0 - 2	MG/L	Arsenic	0 0000	ND	0 0490	0 1000	U		0.050	No	No
AMS-002	0 - 2	MG/L	Arsenic	0.0000	ND	0.0490	0 1000	U		0.050	No	No
AMS-003	0 - 2	MG/L	Arsenic	0 0000	ND	0.0490	0 1000	U		0 050	No	No
AMS-004	0 - 2	MG/L	Arsenic	0 0000	ND	0.0490	0.1000	U		0.050	No	No
AMS-005	0 - 2	MG/L	Arsenic	0.0000	ND	0.0490	0 1000	U		0.050	No	No
AMS-006	0 - 2	MG/L	Arsenic	0 0000	ND	0 0490	0.1000	U		0.050	No	No
AMS-007	0 - 2	MG/L	Arsenic	0 0000	ND	0 0490	0.1000	U		0.050	No	No
AMS-008	0 - 2	MG/L	Arsenic	0.0000	ND	0.0490	0.1000	U		0.050	No	No
AMS-009	0 - 2	MG/L	Arsenic	0.0000	ND	0.0490	0.1000	U		0 050	No	No
AMS-010	0 - 2	MG/L	Arsenic	0.0000	ND	0.0490	0.1000	U		0.050	No	No
AMS-011	0 - 2	MG/L	Arsenic	0 0000	ND	0.0490	0 1000	U		0 050	No	No
AMS-012	0 - 2	MG/L	Arsenic	0 0000	ND	0 0490	0.1000	U		0.050	No	No
AMS-013	0 - 2	MG/L	Arsenic	0 0000	ND	0.0490	0.1000	U		0.050	No	No
AMS-014	0 - 2	MG/L	Arsenic	0 0000	ND	0 0490	0.1000	U		0.050	No	No
FD-AMS014	0 - 2	MG/L	Arsenic	0 0000	ND	0.0490	0 1000	U		0.050	No	No
AMS-015	0 - 2	MG/L	Arsenic	0 0000	ND	0.0490	0.1000	U		0.050	No	No
AMS-016	0 - 2	MG/L	Arsenic	0.0000	ND	0 0490	0.1000	U		0.050	No	No
AMS-017	0 - 2	MG/L	Arsenic	0 0000	ND	0.0490	0 1000	U		0.050	No	No
AMS-018	0 - 2	MG/L	Arsenic	0 0000	ND	0.0490	0.1000	U		0.050	No	No
AMS-019	0 - 2	MG/L	Arsenic	0.0000	ND	0 0490	0 1000	U		0.050	No	No
AMS-020	0 - 2	MG/L	Arsenic	0.0000	ND	0 0490	0 1000	U		0.050	No	No
AMS-021	0 - 2	MG/L	Arsenic	0.0000	ND	0.0490	0.1000	U		0.050	No	No
AMS-022	0 - 2	MG/L	Arsenic	0 0000	ND	0.0490	0.1000	U		0.050	No	No
AMS-023	0 - 2	MG/L	Arsenic	0.0000	ND	0.0490	0 1000	U		0.050	No	No
AMS-024	0 - 2	MG/L	Arsenic	0.0000	ND	0.0490	0.1000	U		0.050	No	No
AMS-025	0 - 2	MG/L	Arsenic	0.0000	ND	0.0490	0.1000	U		0.050	No	No
AMS-026	0 - 1.5	MG/L	Arsenic	0.0000	ND	0.0490	0 1000	U		0.050	No	No
AMS-026B	1.5 - 2	MG/L	Arsenic	0 0000	ND	0 0490	0.1000	U		0 050	No	No
FD-AMS026	0 - 1 5	MG/L	Arsenic	0.0000	ND	0 0490	0.1000	U		0.050	No	No
AMS-001	0 - 2	MG/L	Beryllium	0.0135	TR	0.0030	0.0300	F	B	0.004	Yes	No
AMS-002	0 - 2	MG/L	Beryllium	0.0124	TR	0.0030	0.0300	F	B	0.004	Yes	No
AMS-003	0 - 2	MG/L	Beryllium	0.0119	TR	0.0030	0.0300	F	B	0.004	Yes	No
AMS-004	0 - 2	MG/L	Beryllium	0.0115	TR	0 0030	0.0300	F	B	0.004	Yes	No
AMS-005	0 - 2	MG/L	Beryllium	0 0115	TR	0.0030	0.0300	F	B	0.004	Yes	No
AMS-006	0 - 2	MG/L	Beryllium	0 0114	TR	0.0030	0.0300	F	B	0.004	Yes	No
AMS-007	0 - 2	MG/L	Beryllium	0.0111	TR	0 0030	0.0300	F	B	0.004	Yes	No
AMS-008	0 - 2	MG/L	Beryllium	0 0109	TR	0.0030	0.0300	F	B	0.004	Yes	No
AMS-009	0 - 2	MG/L	Beryllium	0 0110	TR	0 0030	0.0300	F	B	0.004	Yes	No
AMS-010	0 - 2	MG/L	Beryllium	0.0108	TR	0.0030	0.0300	F	B	0.004	Yes	No
AMS-011	0 - 2	MG/L	Beryllium	0.0137	TR	0.0030	0.0300	F	B	0.004	Yes	No
AMS-012	0 - 2	MG/L	Beryllium	0.0117	TR	0.0030	0.0300	F	B	0.004	Yes	No
AMS-013	0 - 2	MG/L	Beryllium	0.0108	TR	0.0030	0.0300	F	B	0.004	Yes	No
AMS-014	0 - 2	MG/L	Beryllium	0 0113	TR	0.0030	0 0300	F	B	0.004	Yes	No
FD-AMS014	0 - 2	MG/L	Beryllium	0.0121	TR	0.0030	0 0300	F	B	0.004	Yes	No
AMS-015	0 - 2	MG/L	Beryllium	0.0104	TR	0.0030	0 0300	F	B	0.004	Yes	No
AMS-016	0 - 2	MG/L	Beryllium	0 0112	TR	0 0030	0.0300	F	B	0.004	Yes	No
AMS-017	0 - 2	MG/L	Beryllium	0.0106	TR	0.0030	0 0300	F	B	0.004	Yes	No
AMS-018	0 - 2	MG/L	Beryllium	0.0144	TR	0 0030	0.0300	F	B	0.004	Yes	No
AMS-019	0 - 2	MG/L	Beryllium	0 0113	TR	0.0030	0.0300	F	B	0.004	Yes	No
AMS-020	0 - 2	MG/L	Beryllium	0 0117	TR	0 0030	0.0300	F	B	0.004	Yes	No
AMS-021	0 - 2	MG/L	Beryllium	0 0112	TR	0.0030	0.0300	F	B	0 004	Yes	No
AMS-022	0 - 2	MG/L	Beryllium	0.0110	TR	0.0030	0 0300	F	B	0.004	Yes	No
AMS-023	0 - 2	MG/L	Beryllium	0.0128	TR	0 0030	0 0300	F	B	0.004	Yes	No
AMS-024	0 - 2	MG/L	Beryllium	0.0118	TR	0.0030	0.0300	F	B	0.004	Yes	No
AMS-025	0 - 2	MG/L	Beryllium	0 0111	TR	0.0030	0.0300	F	B	0.004	Yes	No
AMS-026	0 - 1.5	MG/L	Beryllium	0 0110	TR	0.0030	0 0300	F	B	0.004	Yes	No
AMS-026B	1.5 - 2	MG/L	Beryllium	0 0109	TR	0.0030	0.0300	F	B	0.004	Yes	No
FD-AMS026	0 - 1 5	MG/L	Beryllium	0.0115	TR	0 0030	0.0300	F	B	0.004	Yes	No
AMS-001	0 - 2	MG/L	Chromium	0.0000	ND	0.0890	0.2000	U		0.100	No	No
AMS-002	0 - 2	MG/L	Chromium	0 0000	ND	0.0890	0 2000	U		0.100	No	No
AMS-003	0 - 2	MG/L	Chromium	0 0000	ND	0 0890	0 2000	U		0.100	No	No
AMS-004	0 - 2	MG/L	Chromium	0.0000	ND	0.0890	0 2000	U		0.100	No	No

Table A-1
Summary of Results from Soil Sampling at the Aerospace Museum Site

SAMPLE ID	SAMPLE INTERVAL	UNITS	ANALYTE	VALUE	PARVQ	MDL	PQL	LABQ	JEGQ	RRS2 Standard	Result Exceeds Standard?	MDL Exceeds Standard?
AMS-005	0 - 2	MG/L	Chromium	0.0000	ND	0 0890	0 2000	U		0 100	No	No
AMS-006	0 - 2	MG/L	Chromium	0 0000	ND	0 0890	0 2000	U		0 100	No	No
AMS-007	0 - 2	MG/L	Chromium	0 0000	ND	0.0890	0.2000	U		0.100	No	No
AMS-008	0 - 2	MG/L	Chromium	0.0000	ND	0 0890	0.2000	U		0.100	No	No
AMS-009	0 - 2	MG/L	Chromium	0.0000	ND	0.0890	0.2000	U		0 100	No	No
AMS-010	0 - 2	MG/L	Chromium	0 0000	ND	0.0890	0.2000	U		0 100	No	No
AMS-011	0 - 2	MG/L	Chromium	0.0000	ND	0 0890	0.2000	U		0.100	No	No
AMS-012	0 - 2	MG/L	Chromium	0.0000	ND	0.0890	0 2000	U		0.100	No	No
AMS-013	0 - 2	MG/L	Chromium	0 0000	ND	0 0890	0.2000	U		0 100	No	No
AMS-014	0 - 2	MG/L	Chromium	0 0000	ND	0.0890	0 2000	U		0.100	No	No
FD-AMS014	0 - 2	MG/L	Chromium	0 0000	ND	0.0890	0.2000	U		0.100	No	No
AMS-015	0 - 2	MG/L	Chromium	0.0000	ND	0.0890	0.2000	U		0.100	No	No
AMS-016	0 - 2	MG/L	Chromium	0 0000	ND	0.0890	0.2000	U		0 100	No	No
AMS-017	0 - 2	MG/L	Chromium	0.0000	ND	0.0890	0.2000	U		0.100	No	No
AMS-018	0 - 2	MG/L	Chromium	0 0000	ND	0.0890	0.2000	U		0.100	No	No
AMS-019	0 - 2	MG/L	Chromium	0.0000	ND	0 0890	0 2000	U		0.100	No	No
AMS-020	0 - 2	MG/L	Chromium	0.0000	ND	0.0890	0.2000	U		0.100	No	No
AMS-021	0 - 2	MG/L	Chromium	0.0000	ND	0.0890	0.2000	U		0.100	No	No
AMS-022	0 - 2	MG/L	Chromium	0.0000	ND	0.0890	0.2000	U		0 100	No	No
AMS-023	0 - 2	MG/L	Chromium	0 0000	ND	0 0890	0.2000	U		0 100	No	No
AMS-024	0 - 2	MG/L	Chromium	0 0000	ND	0.0890	0.2000	U		0 100	No	No
AMS-025	0 - 2	MG/L	Chromium	0 0000	ND	0.0890	0.2000	U		0 100	No	No
AMS-026	0 - 1.5	MG/L	Chromium	0.0000	ND	0.0890	0.2000	U		0 100	No	No
AMS-026B	1.5 - 2	MG/L	Chromium	0.0000	ND	0.0890	0.2000	U		0.100	No	No
FD-AMS026	0 - 1.5	MG/L	Chromium	0.0000	ND	0.0890	0.2000	U		0.100	No	No
AMS-001	0 - 2	MG/L	Nickel	0.0000	ND	0.0200	0.1000	U		0 100	No	No
AMS-002	0 - 2	MG/L	Nickel	0.0000	ND	0.0200	0 1000	U		0.100	No	No
AMS-003	0 - 2	MG/L	Nickel	0.0000	ND	0.0200	0.1000	U		0.100	No	No
AMS-004	0 - 2	MG/L	Nickel	0.0000	ND	0.0200	0.1000	U		0.100	No	No
AMS-005	0 - 2	MG/L	Nickel	0 0000	ND	0 0200	0.1000	U		0 100	No	No
AMS-006	0 - 2	MG/L	Nickel	0.0000	ND	0.0200	0.1000	U		0.100	No	No
AMS-007	0 - 2	MG/L	Nickel	0.0000	ND	0.0200	0.1000	U		0.100	No	No
AMS-008	0 - 2	MG/L	Nickel	0.0000	ND	0.0200	0.1000	U		0.100	No	No
AMS-009	0 - 2	MG/L	Nickel	0 0000	ND	0.0200	0.1000	U		0 100	No	No
AMS-010	0 - 2	MG/L	Nickel	0.0000	ND	0.0200	0.1000	U		0.100	No	No
AMS-011	0 - 2	MG/L	Nickel	0.0000	ND	0.0200	0.1000	U		0 100	No	No
AMS-012	0 - 2	MG/L	Nickel	0.0000	ND	0.0200	0.1000	U		0 100	No	No
AMS-013	0 - 2	MG/L	Nickel	0.0000	ND	0.0200	0 1000	U		0.100	No	No
AMS-014	0 - 2	MG/L	Nickel	0.0000	ND	0 0200	0.1000	U		0.100	No	No
FD-AMS014	0 - 2	MG/L	Nickel	0.0000	ND	0 0200	0.1000	U		0.100	No	No
AMS-015	0 - 2	MG/L	Nickel	0.0000	ND	0.0200	0.1000	U		0.100	No	No
AMS-016	0 - 2	MG/L	Nickel	0.0000	ND	0 0200	0.1000	U		0.100	No	No
AMS-017	0 - 2	MG/L	Nickel	0.0000	ND	0.0200	0 1000	U		0 100	No	No
AMS-018	0 - 2	MG/L	Nickel	0.0000	ND	0.0200	0.1000	U		0 100	No	No
AMS-019	0 - 2	MG/L	Nickel	0.0000	ND	0.0200	0.1000	U		0.100	No	No
AMS-020	0 - 2	MG/L	Nickel	0 0000	ND	0 0200	0.1000	U		0 100	No	No
AMS-021	0 - 2	MG/L	Nickel	0.0000	ND	0 0200	0.1000	U		0.100	No	No
AMS-022	0 - 2	MG/L	Nickel	0 0000	ND	0.0200	0.1000	U		0.100	No	No
AMS-023	0 - 2	MG/L	Nickel	0 0000	ND	0.0200	0.1000	U		0 100	No	No
AMS-024	0 - 2	MG/L	Nickel	0 0000	ND	0 0200	0 1000	U		0.100	No	No
AMS-025	0 - 2	MG/L	Nickel	0 0000	ND	0.0200	0.1000	U		0.100	No	No
AMS-026	0 - 1 5	MG/L	Nickel	0.0000	ND	0.0200	0.1000	U		0.100	No	No
AMS-026B	1.5 - 2	MG/L	Nickel	0 0000	ND	0.0200	0.1000	U		0.100	No	No
FD-AMS026	0 - 1.5	MG/L	Nickel	0.0000	ND	0.0200	0.1000	U		0.100	No	No
AMS-001	0 - 2	MG/L	Lead	0 0000	ND	0.0160	0.0500	U		0 015	No	Yes
AMS-002	0 - 2	MG/L	Lead	0.0000	ND	0 0160	0.0500	U		0.015	No	Yes
AMS-003	0 - 2	MG/L	Lead	0.0000	ND	0.0160	0.0500	U		0 015	No	Yes
AMS-004	0 - 2	MG/L	Lead	0.0000	ND	0 0160	0 0500	U		0.015	No	Yes
AMS-005	0 - 2	MG/L	Lead	0 0390	TR	0.0160	0 0500	F		0.015	Yes	Yes
AMS-006	0 - 2	MG/L	Lead	0.0000	ND	0.0160	0.0500	U		0 015	No	Yes
AMS-007	0 - 2	MG/L	Lead	0.0000	ND	0 0160	0.0500	U		0.015	No	Yes
AMS-008	0 - 2	MG/L	Lead	0 0000	ND	0.0160	0 0500	U		0.015	No	Yes

Table A-1
Summary of Results from Soil Sampling at the Aerospace Museum Site

SAMPLE ID	SAMPLE INTERVAL	UNITS	ANALYTE	VALUE	PARVQ	MDL	PQL	LABQ	JEGQ	RRS2 Standard	Result Exceeds Standard?	MDL Exceeds Standard?
AMS-009	0 - 2	MG/L	Lead	0.0000	ND	0 0160	0 0500	U		0.015	No	Yes
AMS-010	0 - 2	MG/L	Lead	0.0000	ND	0 0160	0 0500	U		0.015	No	Yes
AMS-011	0 - 2	MG/L	Lead	0 0000	ND	0.0160	0 0500	U		0.015	No	Yes
AMS-012	0 - 2	MG/L	Lead	0 0000	ND	0.0160	0.0500	U		0.015	No	Yes
AMS-013	0 - 2	MG/L	Lead	0 0000	ND	0.0160	0.0500	U		0.015	No	Yes
AMS-014	0 - 2	MG/L	Lead	0.0315	TR	0.0160	0 0500	F		0 015	Yes	Yes
FD-AMS014	0 - 2	MG/L	Lead	0.0629	=	0.0160	0.0500			0.015	Yes	Yes
AMS-015	0 - 2	MG/L	Lead	0 0000	ND	0.0160	0.0500	U		0.015	No	Yes
AMS-016	0 - 2	MG/L	Lead	0.0000	ND	0.0160	0.0500	U		0.015	No	Yes
AMS-017	0 - 2	MG/L	Lead	0.0000	ND	0 0160	0 0500	U		0.015	No	Yes
AMS-018	0 - 2	MG/L	Lead	0.0000	ND	0.0160	0.0500	U		0.015	No	Yes
AMS-019	0 - 2	MG/L	Lead	0 0000	ND	0.0160	0.0500	U		0.015	No	Yes
AMS-020	0 - 2	MG/L	Lead	0 0000	ND	0 0160	0 0500	U		0.015	No	Yes
AMS-021	0 - 2	MG/L	Lead	0 0000	ND	0 0160	0 0500	U		0.015	No	Yes
AMS-022	0 - 2	MG/L	Lead	0.0206	TR	0.0160	0.0500	F		0.015	Yes	Yes
AMS-023	0 - 2	MG/L	Lead	0.0000	ND	0 0160	0.0500	U		0.015	No	Yes
AMS-024	0 - 2	MG/L	Lead	0.0000	ND	0.0160	0.0500	U		0.015	No	Yes
AMS-025	0 - 2	MG/L	Lead	0 0000	ND	0.0160	0.0500	U		0.015	No	Yes
AMS-026	0 - 1.5	MG/L	Lead	0.0000	ND	0.0160	0 0500	U		0.015	No	Yes
AMS-026B	1 5 - 2	MG/L	Lead	0.0000	ND	0 0160	0 0500	U		0.015	No	Yes
FD-AMS026	0 - 1.5	MG/L	Lead	0.0000	ND	0.0160	0 0500	U		0.015	No	Yes
AMS-001	0 - 2	MG/L	Antimony	0.0000	ND	0 0200	0.0500	U		0.006	No	Yes
AMS-002	0 - 2	MG/L	Antimony	0 0000	ND	0.0200	0.0500	U		0.006	No	Yes
AMS-003	0 - 2	MG/L	Antimony	0.0000	ND	0.0200	0.0500	U		0.006	No	Yes
AMS-004	0 - 2	MG/L	Antimony	0.0000	ND	0.0200	0.0500	U		0.006	No	Yes
AMS-005	0 - 2	MG/L	Antimony	0.0000	ND	0.0200	0.0500	U		0.006	No	Yes
AMS-006	0 - 2	MG/L	Antimony	0.0000	ND	0.0200	0.0500	U		0.006	No	Yes
AMS-007	0 - 2	MG/L	Antimony	0.0000	ND	0.0200	0.0500	U		0.006	No	Yes
AMS-008	0 - 2	MG/L	Antimony	0.0000	ND	0.0200	0.0500	U		0.006	No	Yes
AMS-009	0 - 2	MG/L	Antimony	0.0000	ND	0.0200	0.0500	U		0.006	No	Yes
AMS-010	0 - 2	MG/L	Antimony	0.0000	ND	0.0200	0.0500	U		0.006	No	Yes
AMS-011	0 - 2	MG/L	Antimony	0.0000	ND	0 0200	0.0500	U		0.006	No	Yes
AMS-012	0 - 2	MG/L	Antimony	0.0000	ND	0.0200	0.0500	U		0.006	No	Yes
AMS-013	0 - 2	MG/L	Antimony	0.0000	ND	0.0200	0.0500	U		0.006	No	Yes
AMS-014	0 - 2	MG/L	Antimony	0.0000	ND	0.0200	0.0500	U		0.006	No	Yes
FD-AMS014	0 - 2	MG/L	Antimony	0.0000	ND	0.0200	0.0500	U		0.006	No	Yes
AMS-015	0 - 2	MG/L	Antimony	0 0000	ND	0.0200	0.0500	U		0.006	No	Yes
AMS-016	0 - 2	MG/L	Antimony	0.0000	ND	0.0200	0 0500	U		0 006	No	Yes
AMS-017	0 - 2	MG/L	Antimony	0.0000	ND	0.0200	0.0500	U		0.006	No	Yes
AMS-018	0 - 2	MG/L	Antimony	0.0000	ND	0.0200	0.0500	U		0.006	No	Yes
AMS-019	0 - 2	MG/L	Antimony	0.0000	ND	0.0200	0.0500	U		0.006	No	Yes
AMS-020	0 - 2	MG/L	Antimony	0.0000	ND	0.0200	0.0500	U		0.006	No	Yes
AMS-021	0 - 2	MG/L	Antimony	0.0000	ND	0.0200	0.0500	U		0.006	No	Yes
AMS-022	0 - 2	MG/L	Antimony	0.0000	ND	0 0200	0.0500	U		0.006	No	Yes
AMS-023	0 - 2	MG/L	Antimony	0.0000	ND	0.0200	0.0500	U		0.006	No	Yes
AMS-024	0 - 2	MG/L	Antimony	0 0000	ND	0 0200	0 0500	U		0.006	No	Yes
AMS-025	0 - 2	MG/L	Antimony	0.0000	ND	0.0200	0 0500	U		0.006	No	Yes
AMS-026	0 - 1.5	MG/L	Antimony	0 0000	ND	0 0200	0.0500	U		0.006	No	Yes
AMS-026B	1.5 - 2	MG/L	Antimony	0 0000	ND	0 0200	0.0500	U		0.006	No	Yes
FD-AMS026	0 - 1.5	MG/L	Antimony	0.0000	ND	0.0200	0.0500	U		0.006	No	Yes

NOTES

B = Detected at concentration less than 5 times the lab blank concentration

F = Detected above the method detected limit (MDL) but below the Practical Quantitation Limit (PQL)

JEGQ = Qualifier assigned by Jacobs Engineering data review program

LABQ = Laboratory qualifier

MG/L = Milligrams per liter

ND = Not detected

RRS2 = Medium-Specific concentration (MSC) for Groundwater based on Risk Reduction Standards Number 2

TR = Detected above the MDL, but below the PQL

U = Not detected

March and December 1999, Closure Investigation, Fanning, Phillips, and Molnar (FPM)

Twenty-five surface and subsurface samples were collected by FPM as part of risk-based closure activities for the AMS in accordance with Resource Conservation and Recovery Act Part B Permit HW50289. The sampling activities included the following.

- Collection of soil samples for SPLP analysis to fill data gaps identified in the initial data evaluation
- Collection of soil samples for horizontal and vertical delineation of localized areas that exceed site-specific target levels for closure
- Implementation of incidental soil removal/interim removal actions to meet site-specific contaminant target levels that will allow for risk-based site closure
- Preparation of closure documentation in accordance with the TNRCC RRS 2 Regulation, Section 335.555, Subchapter S guidelines.

Soil samples were analyzed for SVOCs and lead. Lead (41.20 mg/kg) exceeded the background concentration of 30.97 mg/kg. Benzo(a)pyrene (3.36 mg/kg) exceeded the RRS 2 SAI-Ind concentration of 0.34 mg/kg.

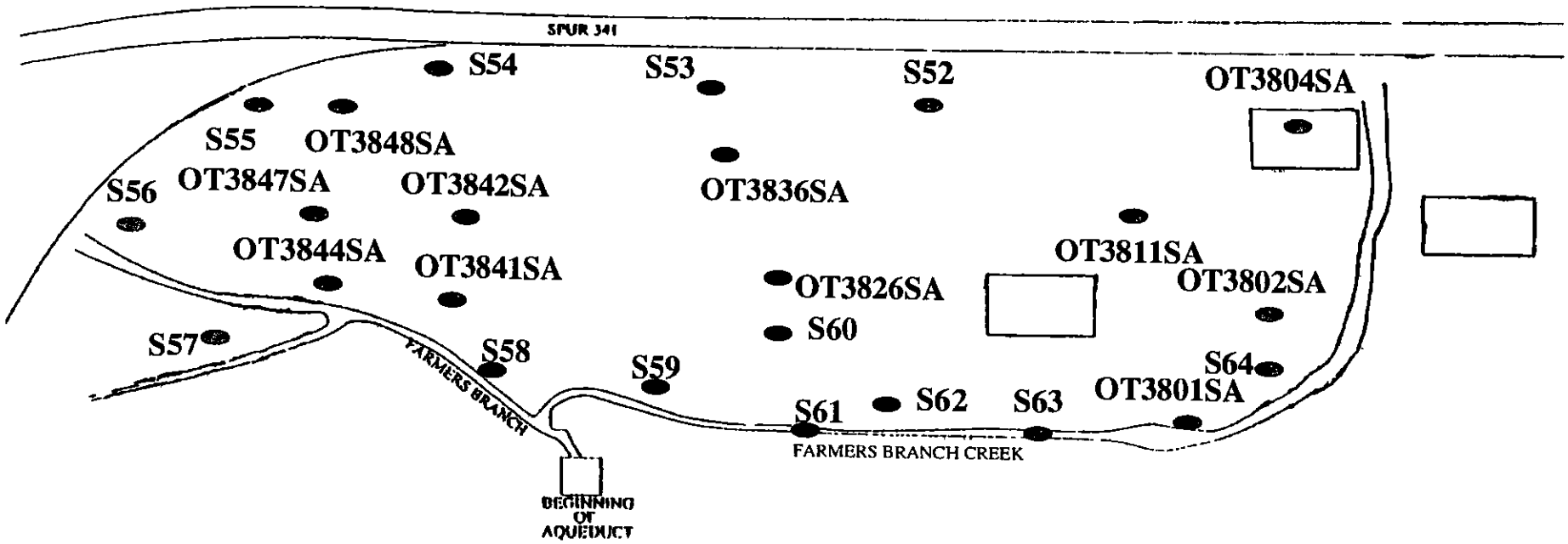
In December 1999, FPM collected soil samples from 24 locations and analyzed for lead, nickel, chromium, zinc, antimony, and VOCs (Figure A-2). The concentrations of zinc, lead, nickel, and silver exceeded background concentrations, but were below RRS 2 MSC values (Table A-2). Methylene chloride and tetrachloroethene (PCE) were also detected at levels below RRS 2 MSC values.

In March 2000, Universe Technologies, Inc. presented the following summary of findings to obtain concurrence from the TNRCC and EPA regulators on the closure of the AMS at Carswell AFB, Texas:

- SPLP concentration of lead in surface soil was less than the GW-Ind Standard (15 micrograms per liter). Lead concentrations at location OT3840SA and all eight horizontal delineation locations (10 to 15 feet) were greater than the GW-Ind Standard (1.5 mg/kg).

Figure A-2

Surface Soil Sampling Locations
October 1995, Law Engineering



LEGEND

● SAMPLE LOCATIONS

Unit for all samples mg/kg

Table A-2

Analytical Results for December 1999 Sampling

Analyte	Location	Concentration (mg/kg)	RRS2 (mg/kg)
Zinc	S64	22.1/21.8	4.1×10^5
	OT3801SA	30.9	4.1×10^5
	S63	37.8	4.1×10^5
	S62	42 3	$4 1 \times 10^5$
	S61	8 12	4.1×10^5
	S60	15.6	4.1×10^5
	S59	62.4	4.1×10^5
	S58	34/152	4.1×10^5
	S57	7.65	4.1×10^5
	OT3844SA	36.5	4.1×10^5
	S56	33.5	4.1×10^5
	S55	127	4.1×10^5
	S54	190/74.2	$4 1 \times 10^5$
	S53	186	4.1×10^5
	S52	179	4.1×10^5
	OT3826SA	37.9	4.1×10^5
Nickel	S64	7.94/7.15	1.2×10^4
	OT3801SA	10.4	1.2×10^4
	S63	12.9	1.2×10^4
	S62	23 3	$1 2 \times 10^4$
	S61	5.13	1.2×10^4
	S60	5.81	1.2×10^4
	S59	11.2	1.2×10^4
	S58	10.3/10.6	1.2×10^4
	S57	5.32	$1 2 \times 10^4$
	OT3844SA	12.7	$1 2 \times 10^4$
	S57	5.32	1.2×10^4
	S56	9 05	1.2×10^4
	S55	9 94	1.2×10^4
	S54	11 8/11 6	$1 2 \times 10^4$
	S53	9 96	1.2×10^4
	S52	12 4	$1 2 \times 10^4$

Table A-2

Analytical Results for December 1999 Sampling

(Page 2 of 2)

Analyte	Location	Concentration (mg/kg)	RRS2 (mg/kg)
	OT3836SA	8 3	1.2×10^{4}
	OT3826SA	12.2	1.2×10^{4}
Lead	OT3801SA	19.3	$1\ 0 \times 10^{3}$
	OT3847SA	18.1	$1\ 0 \times 10^{3}$
	OT3848SA	344	1.0×10^{3}
	S54	536	1.0×10^{3}
	S55	227	1.0×10^{3}
Silver	OT3801SA	0.326	2.8×10^{3}
Chromium	OT3801SA	15.3	1.2×10^{3}
Antimony	OT3801SA	ND	$4\ 9 \times 10^{2}$
	S55	ND	4.9×10^{2}
	S54	ND	4.9×10^{2}
	S53	ND	4.9×10^{2}
	OT3836SA	ND	4.9×10^{2}
Methylene chloride	OT3802SA	4.65×10^{-3}	1.6×10^{1}
	OT3811SA	2.88×10^{-3}	1.6×10^{1}
	OT3841SA	6.38×10^{-3}	1.6×10^{1}
	OT3842SA	1.38×10^{-3}	1.6×10^{1}
	OT3842SA(DUP)	3.9×10^{-3}	1.6×10^{1}
Tetrachloroethene	OT3802SA	3.55×10^{-3}	1.7×10^{1}
	OT3811SA	1.28×10^{-3}	1.7×10^{1}
	OT3841SA	1.4×10^{-3}	1.7×10^{1}
	OT3842SA	2.12×10^{-3}	1.7×10^{1}
	OT3842SA(DUP)	2.09×10^{-3}	1.7×10^{1}

- Lead concentrations from S54 (536 mg/kg), S55 (27 mg/kg), and OT3848Sa (344 mg/kg) were below RRS 2 MSC of 1,000 mg/kg.

- Zinc concentrations from S52 (179 mg/kg), S53 (186 mg/kg), S55 (127 mg/kg), S59 (62.4 mg/kg), and S62 (42.3 mg/kg) exceeded background concentrations, but remained below the RRS 2 MSC of 4.1×10^5 mg/kg.

- PCE and methylene chloride were below the RRS 2 MSC. No further sampling is required for these contaminants.

- Benzo(a)pyrene concentrations ranged from 1.53 to 3.36 mg/kg from OT3801SA and exceeded the RRS 2 MSC of 0.34 mg/kg in the March 1999 sampling event. Benzo(a)pyrene will be analyzed using Method SW8310.

During the presentation, Mr. Mark Weeger, Remedial Project Manager, TNRCC, recommended the following investigation to meet closure requirements at the AMS:

- Analyze metal strips from the fence. Sample for zinc residue along the fence, and also along the drainage way between the fence and the roadway. Conduct SPLP zinc analyses for all samples that exceed RRS 2 GW-Ind values.

- Collect confirmatory soil samples from original sampling locations, and conduct SPLP analyses for all COC that exceed RRS 2 GW-Ind values.

TAB

APPENDIX B

APPENDIX B

SOIL BORING LOGS

HTRW DRILLING LOG

Distnct		Hole Number SS2LO
Company Name: IT Corporation	Drilling Subcontractor: FTW	Sheet 1 of 2 Sheets
Project: NAS Ft. Worth JRB	Location: HANGAR	
Name of Driller: John Braden	Manufacturer's Designation of Drill: Strataprobe	
Sizes and Types of Drilling and Sampling Equipment: Geoprobe 36" x 5'	Northing / Easting / NAD / NGVD	
	Surface Elevation	
	Date Started: 5 Dec 02 / Date Completed: 5 Dec 02	
Overburden Thickness	Depth Groundwater Encountered	
Depth Drilled into Rock	Depth to Water and Elapsed Time After Drilling Completed	
Total Depth of Hole: 4' bgs	Other Water Level Measurements (Specify)	

Geotechnical Samples	Disturbed	Undisturbed	Total Number of Core Boxes

Samples for Chemical Analysis	VOC	Metals	Other	Other	Other	Total Core Recovery

Disposition of Hole	Backfilled	Monitoring Well	Other	Signature of Geologist

Location Sketch/Comments — Scale (not to scale)

0-2' ⇒ SM0031
SM0033

2-4' ⇒ SM0032
SM0034

Project	Hole Number
Naval Air Station (NAS) Fort Worth Joint Reserve Base - 768579	

698 61

HTRW DRILLING LOG (continuation sheet)

Hole Number 5520

Project: Naval Air Station (NAS) Fort Worth Joint Reserve Base - 768579

Geologist: Dukes

Sheet 2 of 2 Sheets

Elev (ft)	Depth (ft) bgs	Description of Materials	USCS/ Litho	Field Screening Results (ppm)	Geotech Sample or Core Box No	Analytical Sample No	Recovery (ft)	Remarks
	0	yellowish brown, s/f/g sand w/ gravel	SP			0-2 BA 0031 0033	24	11:11
	2	v. dark brown, s/f/g clay, calc. nod., iron stains	CL			2-4 BA 0032 0034	24	41
	4	TD @ 4' bgs					24	
	5							
	6							
	7							
	8							
	9							
	0							

Project: Naval Air Station (NAS) Fort Worth Joint Reserve Base - 768579

Hole Number 5520

HTRW DRILLING LOG

Company Name: IT Corporation	Drilling Subcontractor: ESN	Hole Number: S 52 F
Project: NAS Ft Worth JRB	Location: AEIS SWMU	Sheet: 1 of 2 Sheets
Name of Driller: John Bowen	Manufacturer's Designation of Drill: Strataprobe	
Sizes and Types of Drilling and Sampling Equipment: Geoprobe 3.6" x 4'	Northing / Easting / NAD / NGVD	
	Surface Elevation	
	Date Started: 5 Dec 00	Date Completed: 5 Dec 00
Overburden Thickness	Depth Groundwater Encountered	
Depth Drilled into Rock	Depth to Water and Elapsed Time After Drilling Completed	
Total Depth of Hole: 4' bgs	Other Water Level Measurements (Specify)	

Geotechnical Samples	Disturbed	Undisturbed	Total Number of Core Boxes

Samples for Chemical Analysis	VOC	Metals	Other	Other	Other	Total Core Recovery

Disposition of Hole	Backfilled	Monitoring Well	Other	Signature of Geologist

Location Sketch/Comments — Scale: (not to scale)

0 - 2 ⇒ BM0023

2 - 4 ⇒ BM0024

Project	Hole Number
Naval Air Station (NAS) Fort Worth Joint Reserve Base - 768579	S 52F

698 63

HTRW DRILLING LOG (continuation sheet)

Hole Number S52F

Project: Naval Air Station (NAS) Fort Worth Joint Reserve Base - 768579

Geologist: Dicken

Sheet 2 of 2 Sheets

Elev (ft)	Depth (ft) bgs	Description of Materials	USCS/ Litho	Field Screening Results (ppm)	Geotech Sample or Core Box No	Analytical Sample No	Recovery (ft)	Remarks
	0	V dark brown, silty clay, herbaceous, firm, s. calc. nod., m. stiff	CL			0-2 BM CC23 ↓		
	1							
	2					2-4 BM CC24 ↓	2/4	
	3	yellowish brown, fine gravel ↓						
	4	TD @ 4' bgs					2/4	41
	5							
	6							
	7							
	8							
	9							
	0							

Project: Naval Air Station (NAS) Fort Worth Joint Reserve Base - 768579

Hole Number S52F

HTRW DRILLING LOG

Company Name: IT Corporation	Drilling Subcontractor: ETN	Hole Number: S-5300
Project: NAS Ft Worth JRB	Location: Aerospace	Sheet: 1 of 2
Name of Driller: John Braden	Manufacturer's Designation of Drill: Strataprobe	
Sizes and Types of Drilling and Sampling Equipment: Geoprobe 3½" x 2"	Northing / Easting / NAD / NGVD	
	Surface Elevation	
	Date Started: 5 Dec 00	Date Completed: 5 Dec 00
Overburden Thickness	Depth Groundwater Encountered	
Depth Drilled into Rock	Depth to Water and Elapsed Time After Drilling Completed	
Total Depth of Hole: 4' bgs	Other Water Level Measurements (Specify)	

Geotechnical Samples	Disturbed	Undisturbed	Total Number of Core Boxes

Samples for Chemical Analysis	VOC	Metals	Other	Other	Other	Total Core Recovery

Disposition of Hole	Backfilled	Monitoring Well	Other	Signature of Geologist
				Aaron Wilson

Location Sketch/Comments — Scale (not to scale)

0-2 ⇒ BM0035

2-4 ⇒ BM0036

Project	Hole Number
Naval Air Station (NAS) Fort Worth Joint Reserve Base - 768579	S-5300

698 65

HTRW DRILLING LOG (continuation sheet)

Hole Number S 557 CO

Project: Naval Air Station (NAS) Fort Worth
Joint Reserve Base - 768579

Geologist: Dunn

Sheet 2 of 2 Sheets

Elev (ft)	Depth (ft) bgs	Description of Materials	USCS/ Litho	Field Screening Results (ppm)	Geotech. Sample or Core Box No	Analytical Sample No	Recovery (ft)	Remarks
	0	orange sand w/gravels	SP			0-2 BM 0835	24	4"
	1	light gray, silty clay roots, rocks, oak root.	OL					
	2					2-4 BM 0836	24	3'1"
	3	orange sand w/gravels	SP				24	4'
	4	TD @ 4'4"					24	
	5							
	6							
	7							
	8							
	9							
	0							

Project: Naval Air Station (NAS) Fort Worth Joint Reserve Base - 768579

Hole Number S 557 CO

HTRW DRILLING LOG

Company Name: IT Corporation	Drilling Subcontractor: ESN	Hole Number: SS3F; Sheet: 1 of 2 Sheets
Project: NAS Ft Worth JRB	Location: Aerospace	
Name of Driller: John Barker	Manufacturer's Designation of Drill: Stratagraphics	
Sizes and Types of Drilling and Sampling Equipment: Geoprobe 36" x 2"	Northing / Easting / NAD / NGVD	
	Surface Elevation	
	Date Started: 5 Dec 02 / Date Completed: 5 Dec 02	
Overburden Thickness	Depth Groundwater Encountered	
Depth Drilled into Rock	Depth to Water and Elapsed Time After Drilling Completed	
Total Depth of Hole: 4'bgs	Other Water Level Measurements (Specify)	

Geotechnical Samples	Disturbed	Undisturbed	Total Number of Core Boxes

Samples for Chemical Analysis	VOC	Metals	Other	Other	Other	Total Core Recovery

Disposition of Hole	Backfilled	Monitoring Well	Other	Signature of Geologist

Location Sketch/Comments — Scale (not to scale)

0-2 ⇒ BM0025

2-4 ⇒ BM0026

Project	Hole Number
Naval Air Station (NAS) Fort Worth Joint Reserve Base - 768579	SS3F

698 67

HTRW DRILLING LOG (continuation sheet)

Hole Number S 53 F

Project: Naval Air Station (NAS) Fort Worth Joint Reserve Base - 768579

Geologist: Dehm

Sheet 2 of 2 Sheets

Elev (ft)	Depth (ft) bgs	Description of Materials	USCS/ Litho	Field Screening Results (ppm)	Geotech Sample or Core Box No	Analytical Sample No	Recovery (ft)	Remarks
	0	v. dark brown, c. silty clay, herbaceous, c5" green styrofoam	OL			0-2 BM 0025	24	
	1							
	2	more stiff, light brown				2-4 BM 0026	24	
	3	yellowish brown, v. friable, rocks					24	4/1
	4	TD @ 4' bgs					24	
	5							
	6							
	7							
	8							
	9							
	0							

Project: Naval Air Station (NAS) Fort Worth Joint Reserve Base - 768579

Hole Number S 53 F

HTRW DRILLING LOG

Company Name: IT Corporation	Drilling Subcontractor: ESN	Hole Number: S 5440
Project: NAS Ft Worth JRB	Location: Aerospace	Sheet: 1 of 2 Sheets
Name of Driller: John Braden	Manufacturer's Designation of Drill: Strataprobe	
Sizes and Types of Drilling and Sampling Equipment: Geoprobe 6" x 2"	Northing / Easting / NAD / NGVD	
	Surface Elevation	
	Date Started: 5 Dec 00 / Date Completed: 5 Dec 00	
Overburden Thickness	Depth Groundwater Encountered	
Depth Drilled into Rock	Depth to Water and Elapsed Time After Drilling Completed	
Total Depth of Hole: 4'bgs	Other Water Level Measurements (Specify)	

Geotechnical Samples	Disturbed	Undisturbed	Total Number of Core Boxes

Samples for Chemical Analysis	VOC	Metals	Other	Other	Other	Total Core Recovery

Disposition of Hole	Backfilled	Monitoring Well	Other	Signature of Geologist
				[signature]

Location Sketch/Comments — Scale: (not to scale)

0-2 => BM0037

2-4 => BM0038

Project	Hole Number
Naval Air Station (NAS) Fort Worth Joint Reserve Base - 768579	S 54 00

HTRW DRILLING LOG (continuation sheet)

Hole Number 554W

Project: Naval Air Station (NAS) Fort Worth Joint Reserve Base - 768579

Geologist: Duhon

Sheet 2 of 2 Sheets

Elev (ft)	Depth (ft) bgs	Description of Materials	USCS/ Litho	Field Screening Results (ppm)	Geotech Sample or Core Box No	Analytical Sample No	Recovery (ft)	Remarks
	0–1	yellowish brown, silty sand w/ gravels ↓ 11"-1'3" dark brown ↓	gm			0-2 BM 0037 ↓	2/4	2'
	2–3	v. dark brown, silty clay, herbaceous, ironstone, calc. nod.	cl			2-4 BM 0038 ↓	2/4	4'
	4						1/4	
	5–9	TD @ 4'6"						

Project: Naval Air Station (NAS) Fort Worth Joint Reserve Base - 768579

Hole Number 554W

HTRW DRILLING LOG

Distnct		Hole Number S54/F
Company Name: IT Corporation	Drilling Subcontractor: ESN	Sheet 1 of 2 Sheets
Project: NAS Ft Worth JRB	Location: Aerospace	
Name of Driller: John Braden	Manufacturer's Designation of Drill: Strataprobe	
Sizes and Types of Drilling and Sampling Equipment: Geoprobe 36" x 2"	Northing / Easting / NAD / NGVD	
	Surface Elevation	
	Date Started: 5 Dec 00 / Date Completed: 5 Dec 00	
Overburden Thickness	Depth Groundwater Encountered	
Depth Drilled into Rock	Depth to Water and Elapsed Time After Drilling Completed	
Total Depth of Hole: 4'6g0	Other Water Level Measurements (Specify)	

Geotechnical Samples	Disturbed	Undisturbed	Total Number of Core Boxes

Samples for Chemical Analysis	VOC	Metals	Other	Other	Other	Total Core Recovery

Disposition of Hole	Backfilled	Monitoring Well	Other	Signature of Geologist

Location Sketch/Comments — Scale: (not to scale)

0-2 ⇒ BM0027
BM0027MS
BM0027MSD

2-4 ⇒ BM0028

Project	Hole Number
Naval Air Station (NAS) Fort Worth Joint Reserve Base - 768579	S64/F

HTRW DRILLING LOG (continuation sheet)

Hole Number 554 F

Project: Naval Air Station (NAS) Fort Worth Joint Reserve Base - 768579

Geologist: Duke

Sheet 2 of 2 Sheets

Elev (ft)	Depth (ft) bgs	Description of Materials	USCS/ Lithe	Field Screening Results (ppm)	Geotech Sample or Core Box No	Analytical Sample No	Recovery (ft)	Remarks
	0	v. dk brown, silty clay, herbaceous, 2" asphalt rubble, med stiff, few rock,	CL			0-2 BM 0027 MS MSD	24	
	2	light brown, consistent				2-4 BM 0028	24	
	4						24	4'
	5	TD CH' 5F					24	
	6							
	7							
	8							
	9							
	0							

Project: Naval Air Station (NAS) Fort Worth Joint Reserve Base - 768579

Hole Number 554 F

HTRW DRILLING LOG

Company Name: IT Corporation	Drilling Subcontractor: ESN	Hole Number: S-5-57-J
Project: NAS Ft Worth JRB	Location: AEROSPACE	Sheet: 1 of 2 Sheets
Name of Driller: John Slaten	Manufacturer's Designation of Drill: Stratapro 56	
Sizes and Types of Drilling and Sampling Equipment: Geoprobe 36" x 2"	Northing / Easting / NAD / NGVD	
	Surface Elevation	
	Date Started: 5 Dec 00 / Date Completed: 5 Dec 00	
Overburden Thickness	Depth Groundwater Encountered	
Depth Drilled into Rock	Depth to Water and Elapsed Time After Drilling Completed	
Total Depth of Hole: 4'6"	Other Water Level Measurements (Specify)	

Geotechnical Samples	Disturbed	Undisturbed	Total Number of Core Boxes

Samples for Chemical Analysis	VOC	Metals	Other	Other	Other	Total Core Recovery

Disposition of Hole	Backfilled	Monitoring Well	Other	Signature of Geologist
				Aimee Dubon

Location Sketch/Comments — Scale: (not to scale)

0-2 => BM0039

2-4 => BM0040

Project	Hole Number
Naval Air Station (NAS) Fort Worth Joint Reserve Base - 768579	S-5-57-J

698 73

HTRW DRILLING LOG (continuation sheet)

Hole Number 55510

Project: Naval Air Station (NAS) Fort Worth Joint Reserve Base - 768579

Geologist: Dikin

Sheet 2 of 2 Sheets

Elev (ft)	Depth (ft) bgs	Description of Materials	USCS/ Litho	Field Screening Results (ppm)	Geotech Sample or Core Box No	Analytical Sample No	Recovery (ft)	Remarks
	0–2	v dark brown, silty clay, herbaceous ↓ @ 1'1" fragmented limestone 2" thick ↓ light yellowish brown, v. calc. ned.	CL			0-2 AM 0039 ↓	24 / 24	
	2–4	@2'9"-3'7", sand w/ gravels, v dark brown ↓ yellowish brown ↓	SP			2-4 AM 0040 ↓	24 / 24	2'9" / 4'
	4	TD @ 4' bgs						
	5							
	6							
	7							
	8							
	9							
	0							

Project: Naval Air Station (NAS) Fort Worth Joint Reserve Base - 768579 Hole Number 55510

HTRW DRILLING LOG

Company Name: IT Corporation	Drilling Subcontractor: ESN	Hole Number: 5 55F
Project: NAS Ft. Worth JRB	Location: Aerospace	Sheet: 1 of 2 Sheets
Name of Driller: Tony Brake	Manufacturer's Designation of Drill: Stratoprobe	
Sizes and Types of Drilling and Sampling Equipment: Geoprobe 36" x 2"	Northing / Easting / NAD / NGVD	
	Surface Elevation	
	Date Started: 5 Dec 00 / Date Completed: 5 Dec 00	
Overburden Thickness	Depth Groundwater Encountered	
Depth Drilled into Rock	Depth to Water and Elapsed Time After Drilling Completed	
Total Depth of Hole: 4'6@0	Other Water Level Measurements (Specify)	

Geotechnical Samples	Disturbed	Undisturbed	Total Number of Core Boxes

Samples for Chemical Analysis	VOC	Metals	Other	Other	Other	Total Core Recovery

Disposition of Hole	Backfilled	Monitoring Well	Other	Signature of Geologist

Location Sketch/Comments — Scale: (not to scale)

1-2 ⇒ AM0029

2-4 ⇒ BM0030

Project	Hole Number
Naval Air Station (NAS) Fort Worth Joint Reserve Base - 768579	5 55F

HTRW DRILLING LOG (continuation sheet)

Hole Number 555F

Project: Naval Air Station (NAS) Fort Worth
Joint Reserve Base - 768579

Geologist: Dahn

Sheet 2 of 8 Sheets

Elev (ft)	Depth (ft) bgs	Description of Materials	USCS/ Litho	Field Screening Results (ppm)	Geotech Sample or Core Box No	Analytical Sample No	Recovery (ft)	Remarks
	0	v. dark brown, silty clay, interbedded, few rocks, scale mod.	cl			0-2 BM 0029	24	
	1							
	2	(2-4" yellowish brown v. calc mod.				2-4 BM 0030	24	
	3							
	4	large rocks					24	4/1
	5	TD @ 4'bgs					24	
	6							
	7							
	8							
	9							
	0							

Project: Naval Air Station (NAS) Fort Worth Joint Reserve Base 768579

Hole Number 555F

HTRW DRILLING LOG

Company Name: IT Corporation	Drilling Subcontractor: ESN	Hole Number: SS8C; Sheet: 1 of 2 Sheets
Project: NAS Ft. Worth JRB	Location: Aerospace	
Name of Driller: John Braden	Manufacturer's Designation of Drill: Strataprobe	
Sizes and Types of Drilling and Sampling Equipment: Geoprobe 36" x 2"	Northing / Easting / NAD / NGVD:	
	Surface Elevation:	
	Date Started: 5 Dec 00	Date Completed: 5 Dec 00
Overburden Thickness:	Depth Groundwater Encountered:	
Depth Drilled into Rock:	Depth to Water and Elapsed Time After Drilling Completed:	
Total Depth of Hole: 4'bgs	Other Water Level Measurements (Specify):	

Geotechnical Samples	Disturbed	Undisturbed	Total Number of Core Boxes

Samples for Chemical Analysis	VOC	Metals	Other	Other	Other	Total Core Recovery

Disposition of Hole	Backfilled	Monitoring Well	Other	Signature of Geologist

Location Sketch/Comments — Scale: (not to scale)

0-2 ⇒ BM0013

2-4 ⇒ BM0014

Project	Hole Number
Naval Air Station (NAS) Fort Worth Joint Reserve Base - 768579	SS8C

HTRW DRILLING LOG (continuation sheet)

Hole Number 558C

Project: Naval Air Station (NAS) Fort Worth
Joint Reserve Base - 768579

Geologist: Dahm

Sheet 2 of 2 Sheets

Elev (ft)	Depth (ft) bgs	Description of Materials	USCS/ Litho	Field Screening Results (ppm)	Geotech Sample or Core Box No	Analytical Sample No	Recovery (ft)	Remarks
	0	dk brown, s. lty clay, hebaceous, med. stiff	CL			C-2 BM CCB	24	
	1	@ 4"-6" span yellow silty sand						
	2	scale. red.					24	
	3	yellowish brown poorly graded,				2-4 BM CCB		
	4	3'7"-3'8" hit rock					24	4'
	5	TD @ 4'6 8"					24	
	6							
	7							
	8							
	9							
	0							

Project: Naval Air Station (NAS) Fort Worth Joint Reserve Base - 768579

Hole Number 558C

HTRW DRILLING LOG

Company Name: IT Corporation	Drilling Subcontractor: ESN	Hole Number: S S-9C; Sheet: 1 of 2 Sheets
Project: NAS Ft Worth JRB	Location: Aerospace	
Name of Driller: John Braden	Manufacturer's Designation of Drill: Strataprobe	
Sizes and Types of Drilling and Sampling Equipment: Geoprobe 36" x 2"	Northing / Easting / NAD / NGVD	
	Surface Elevation	
	Date Started: 5 Dec 00	Date Completed: 5 Dec 00
Overburden Thickness	Depth Groundwater Encountered	
Depth Drilled into Rock	Depth to Water and Elapsed Time After Drilling Completed	
Total Depth of Hole: 4'bgs	Other Water Level Measurements (Specify)	

Geotechnical Samples	Disturbed	Undisturbed	Total Number of Core Boxes

Samples for Chemical Analysis	VOC	Metals	Other	Other	Other	Total Core Recovery

Disposition of Hole	Backfilled	Monitoring Well	Other	Signature of Geologist
				Doreen Dillon

Location Sketch/Comments — Scale: (not to scale)

0-2 ⇒ BM0015

2-4 ⇒ BM0016

Project	Hole Number
Naval Air Station (NAS) Fort Worth Joint Reserve Base - 768579	S S-9C

HTRW DRILLING LOG

(continuation sheet)

Hole Number 559C

Project

Geologist Fuhrer

Sheet 2 of 2 Sheets

Elev (ft)	Depth (ft) bgs	Description of Materials	USCS/ Lithe	Field Screening Results (ppm)	Geotech. Sample or Core Box No	Analytical Sample No.	Recovery (ft)	Remarks
	0–4	v. dark brown, s.lt, clay, herbaceous, v. calc. nod., ↓ 1'8" bone ↓ c.a 2'4" yellowish brown, stiff, v. calc. nod. ↓	OL			0-2 DM 0015 2-4 DM 0016	24 24 24 24	41
	4–10	TD @ 4' bgs						

Project

Hole Number 559C

HTRW DRILLING LOG

Company Name: IT Corporation	Drilling Subcontractor: ESN	Hole Number: 5 62C
Project: NAS Ft Worth JRB	Location: Aerospace	Sheet: 1 of 2 Sheets
Name of Driller: John Nutter	Manufacturer's Designation of Drill: Strataprobe	
Sizes and Types of Drilling and Sampling Equipment: Geoprobe 36" x 2"	Northing / Easting / NAD / NGVD	
	Surface Elevation	
	Date Started: 5 Dec 00	Date Completed: 5 Dec 00
Overburden Thickness	Depth Groundwater Encountered	
Depth Drilled into Rock	Depth to Water and Elapsed Time After Drilling Completed	
Total Depth of Hole: 4' bgs	Other Water Level Measurements (Specify)	

Geotechnical Samples	Disturbed	Undisturbed	Total Number of Core Boxes

Samples for Chemical Analysis	VOC	Metals	Other	Other	Other	Total Core Recovery

Disposition of Hole	Backfilled	Monitoring Well	Other	Signature of Geologist
				Steven Walker

Location Sketch/Comments — Scale: (not to scale)

0 - 2 ⇒ BM 0017

2 - 4 ⇒ BM0018

Project	Hole Number
Naval Air Station (NAS) Fort Worth Joint Reserve Base - 768579	5 62C

HTRW DRILLING LOG

(continuation sheet)

Hole Number 562C

Project

Geologist Durkee

Sheet 2 of 2 Sheets

Elev (ft)	Depth (ft) bgs	Description of Materials	USCS/ Lithe	Field Screening Results (ppm)	Geotech. Sample or Core Box No	Analytical Sample No	Recovery (ft)	Remarks
	1	light yellowish brown, silty clay, calc nod., orange mott'l herbaceous	CL			0-2 BM 0017	24	
	2	@ 1'6" stiff @ 1'11" dark brown, iron stains						
	3	@ 3'4" yellowish, gravely silty clay	GC			2-4 BM 0018	24	3'
	4	TD @ 4' bgs					24	4'
	5							
	6							
	7							
	8							
	9							
	0							

Project

Hole Number 562C

HTRW DRILLING LOG

Company Name: IT Corporation	District	Hole Number: OT38C1SAC
	Drilling Subcontractor: ESN	Sheet: 1 of 2 Sheets

Project: NAS Ft Worth JRB	Location: Aerospace
Name of Driller: John Bradley	Manufacturer's Designation of Drill: Stratoprobe
Sizes and Types of Drilling and Sampling Equipment: Geoprobe 36" x 2"	Northing / Easting / NAD / NGVD
	Surface Elevation
	Date Started: 5 Dec 00 / Date Completed: 5 Dec 00
Overburden Thickness	Depth Groundwater Encountered
Depth Drilled into Rock	Depth to Water and Elapsed Time After Drilling Completed
Total Depth of Hole: 4' bgs	Other Water Level Measurements (Specify)

Geotechnical Samples	Disturbed	Undisturbed	Total Number of Core Boxes

Samples for Chemical Analysis	VOC	Metals	Other	Other	Other	Total Core Recovery

Disposition of Hole	Backfilled	Monitoring Well	Other	Signature of Geologist

Location Sketch/Comments — Scale: (not to scale)

6" fibers

0-2 ⇒ BM00021

2-4 ⇒ BM00022

BM00022MS

BM00022MSD

Project	Hole Number
Naval Air Station (NAS) Fort Worth Joint Reserve Base - 768579	OT38C1SAC

HTRW DRILLING LOG

(continuation sheet)

Hole Number OT38015AC

Project

Geologist D. Lum

Sheet 2 of 3 Sheets

Elev (ft)	Depth (ft) bgs	Description of Materials	USCS/ Litho	Field Screening Results (ppm)	Geotech. Sample or Core Box No	Analytical Sample No	Recovery (ft)	Remarks
	1	Pushed to TD to cross over & use Air tubes sampling				0-2 BM CO21 ↓		
	2					2-4 BM CO22 MS MSD ↓		4'
	3							
	4	TD @ 4' bgs						
	5							
	6							
	7							
	8							
	9							
	0							

Project

Hole Number OT3801SAC

HTRW DRILLING LOG	District	Hole Number SS02C
Company Name: IT Corporation	Drilling Subcontractor: ESN	Sheet 1 of 2 Sheets

Project: NAS Ft Worth JRB	Location: AEROSPACE
Name of Driller: John Arata	Manufacturer's Designation of Drill: Stratapobe
Sizes and Types of Drilling and Sampling Equipment: Geoprobe 36" x 5"	Northing / Easting / NAD / NGVD:
	Surface Elevation:
	Date Started: 5 Dec 00 — Date Completed: 5 Dec 00
Overburden Thickness:	Depth Groundwater Encountered:
Depth Drilled into Rock:	Depth to Water and Elapsed Time After Drilling Completed:
Total Depth of Hole: 4'6"	Other Water Level Measurements (Specify):

Geotechnical Samples	Disturbed	Undisturbed	Total Number of Core Boxes

Samples for Chemical Analysis	VOC	Metals	Other	Other	Other	Total Core Recovery

Disposition of Hole	Backfilled	Monitoring Well	Other	Signature of Geologist

Location Sketch/Comments — Scale: (not to scale)

0-2 ⇒ SM0003

2-4 ⇒ SM0004

SM0004MS

SM0004MSD

Project	Hole Number
Naval Air Station (NAS) Fort Worth Joint Reserve Base - 768579	SS02C

HTRW DRILLING LOG (continuation sheet)

Hole Number: 552C

Project: Naval Air Station (NAS) Fort Worth
Joint Reserve Base - 768579

Geologist: Duhon

Sheet 2 of 2 Sheets

Elev (ft)	Depth (ft) bgs	Description of Materials	USCS/ Litho	Field Screening Results (ppm)	Geotech Sample or Core Box No	Analytical Sample No	Recovery (ft)	Remarks
	0	v. dark brown, s. lty clay herbaceous/roots, few rocks CALC. @ 1'11"	OL			0-2 BM1 0003	24	
	1							
	2	yellowish brown, v calc. mod. few large rocks				2-4 BM 0004 @ 1115 @ 1151	24	
	3							
	4	TD @ 4'bgs					24	4'
	5						24	
	6							
	7							
	8							
	9							

Project: Naval Air Station (NAS) Fort Worth Joint Reserve Base - 768579

Hole Number: S 52C

HTRW DRILLING LOG

District		Hole Number OT3848SAC
Company Name IT Corporation	Drilling Subcontractor ESN	Sheet 1 of 2 Sheets
Project NAS Ft Worth JRB	Location Aerospace	
Name of Driller John Bracken	Manufacturer's Designation of Drill Stratapobe	
Sizes and Types of Drilling and Sampling Equipment: Geoprobe 36" x 5"	Northing	Easting / NAD / NGVD
	Surface Elevation	
	Date Started 5 Dec 00	Date Completed 5 Dec 00
Overburden Thickness	Depth Groundwater Encountered	
Depth Drilled into Rock	Depth to Water and Elapsed Time After Drilling Completed	
Total Depth of Hole 4'6"	Other Water Level Measurements (Specify)	

Geotechnical Samples	Disturbed	Undisturbed	Total Number of Core Boxes

Samples for Chemical Analysis	VOC	Metals	Other	Other	Other	Total Core Recovery

Disposition of Hole	Backfilled	Monitoring Well	Other	Signature of Geologist

Location Sketch/Comments — Scale: (not to scale)

0-2 ⇒ BM0019

2-4 ⇒ BM0020

Project	Hole Number
Naval Air Station (NAS) Fort Worth Joint Reserve Base - 768579	OT3848SAC

698 87

HTRW DRILLING LOG (continuation sheet)

Hole Number OT-3E48SAC

Project: Naval Air Station (NAS) Fort Worth
Joint Reserve Base - 768579

Geologist: Dixon

Sheet 2 of 2 Sheets

Elev (ft)	Depth (ft) bgs	Description of Materials	USCS/ Litho	Field Screening Results (ppm)	Geotech Sample or Core Box No	Analytical Sample No	Recovery (ft)	Remarks
	0	v. dk brown, silty clay, herbaceous, w/ gravels up to 1" dia	OL			0-2 BM C019	24	
	1							
	2	v. calc. nods., few rocks @ 2'-2" yellowish brown, v. calc. nods. orange mott'l				2-4 BM C02C	24	
	3							
	4						24	41
	5	T.D. @ 4' bgs						
	6							
	7							
	8							
	9							

Project: Naval Air Station (NAS) Fort Worth Joint Reserve Base - 768579

Hole Number OT3848SAC

HTRW DRILLING L G	District	Hole Number SS4C
Company Name IT Corporation	Drilling Subcontractor ESN	Sheet 1 of 2 Sheets

Project NAS Ft Worth JRB		Location Aerospace		
Name of Driller John Braden		Manufacturer's Designation of Drill Stratapac 60a		
Sizes and Types of Drilling and Sampling Equipment	Geoprobe 36" x 5"	Northing	Easting	NAD / NGVD
		Surface Elevation		
		Date Started 5 Dec 00	Date Completed 5 Dec 00	
Overburden Thickness		Depth Groundwater Encountered		
Depth Drilled into Rock		Depth to Water and Elapsed Time After Drilling Completed		
Total Depth of Hole 4'6"		Other Water Level Measurements (Specify)		

Geotechnical Samples	Disturbed	Undisturbed	Total Number of Core Boxes

Samples for Chemical Analysis	VOC	Metals	Other	Other	Other	Total Core Recovery

Disposition of Hole	Backfilled	Monitoring Well	Other	Signature of Geologist
				Bruce Archer

Location Sketch/Comments

Scale: (not to scale)

0-2 ⇒ BM0007

2-4 ⇒ BM0008

Project	Hole Number
Naval Air Station (NAS) Fort Worth Joint Reserve Base - 768579	SS4C

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7/27/00

698 89

HTRW DRILLING LOG (continuation sheet)

Hole Number: SS-4C

Project: Naval Air Station (NAS) Fort Worth
Joint Reserve Base - 768579

Geologist: Dohm

Sheet 2 of 2 Sheets

Elev (ft)	Depth (ft) bgs	Description of Materials	USCS/ Lithology	Field Screening Results (ppm)	Geotech Sample or Core Box No	Analytical Sample No	Recovery (ft)	Remarks
	0	c. dark brown, silty clay, herbaceous, few rocks	CL			0-2 BM 0007	24	
	1	- calc. rocks						
	2	yellowish brown, v. calc. rocks				2-4 BM 0008	24	
	3							
	4	TD @ 4' bgs					24	4'
	5							
	6							
	7							
	8							
	9							

Project: Naval Air Station (NAS) Fort Worth Joint Reserve Base - 768579

Hole Number: SS4C

HTRW DRILLING LOG

Company Name: IT Corporation	Drilling Subcontractor: ESN	Hole Number: S536
Project: AAS Ft Worth JRB	Location: Aerospace	Sheet: 1 of 2 Sheets
Name of Driller: John Braden	Manufacturer's Designation of Drill: Strataprobe	
Sizes and Types of Drilling and Sampling Equipment: Geoprobe 3.5" x 2"	Northing / Easting / NAD / NGVD	
	Surface Elevation	
	Date Started: 5 Dec 00	Date Completed: 5 Dec 00
Overburden Thickness	Depth Groundwater Encountered	
Depth Drilled into Rock	Depth to Water and Elapsed Time After Drilling Completed	
Total Depth of Hole: 4'bgs	Other Water Level Measurements (Specify)	

Geotechnical Samples	Disturbed	Undisturbed	Total Number of Core Boxes

Samples for Chemical Analysis	VOC	Metals	Other	Other	Other	Total Core Recovery

Disposition of Hole	Backfilled	Monitoring Well	Other	Signature of Geologist

Location Sketch/Comments

Scale: (not to scale)

0 - 2 ⇒ BM0005

2 - 4 ⇒ BM0006

Project	Hole Number
Naval Air Station (NAS) Fort Worth Joint Reserve Base - 768579	S536

698 91

HTRW DRILLING LOG (continuation sheet)

Hole Number 553 C

Project: Naval Air Station (NAS) Fort Worth Joint Reserve Base - 768579

Geologist: Dubon

Sheet 2 of 2 Sheets

Elev (ft)	Depth (ft) bgs	Description of Materials	USCS/ Litho	Field Screening Results (ppm)	Geotech Sample or Core Box No	Analytical Sample No	Recovery (ft)	Remarks
	0	d. dark brown, sl/gy clay, limestone, few rocks	CL			0-2		
	1					BM 0005		
	2	↓				↓	2/4	
		tan, clay, gravel yellowish brown, s/fr. dry, stiff, calc. mod.					2/4	
	3	↓				2-4		
						BM 0006		
	4					↓	2/4	4'
		TD @ 4' bgs					2/4	
	5							
	6							
	7							
	8							
	9							
	0							

Project: Naval Air Station (NAS) Fort Worth Joint Reserve Base - 768579 Hole Number

HTRW DRILLING L G	District	Hole Number 558C
Company Name: IT Corporation	Drilling Subcontractor: ESN	Sheet 1 of 2 Sheets

Project: NAS Ft Worth JRB	Location: Aerospace			
Name of Driller: John Braden	Manufacturer's Designation of Drill: strataprobe			
Sizes and Types of Drilling and Sampling Equipment: Geoprobe 36" x 2"	Northing	Easting	NAD	NGVD
	Surface Elevation			
	Date Started: 5 Dec 00	Date Completed: 5 Dec 00		
Overburden Thickness	Depth Groundwater Encountered			
Depth Drilled into Rock	Depth to Water and Elapsed Time After Drilling Completed			
Total Depth of Hole: 4'bgs	Other Water Level Measurements (Specify)			

Geotechnical Samples	Disturbed	Undisturbed	Total Number of Core Boxes			
Samples for Chemical Analysis	**VOC**	**Metals**	**Other**	**Other**	**Other**	**Total Core Recovery**

Disposition of Hole	Backfilled	Monitoring Well	Other	Signature of Geologist

Location Sketch/Comments

Scale: (not to scale)

0 - 2 ⇒ BM 0009
BM 0010

2 - 4 ⇒ BM 0011
BM 0012

Project: Naval Air Station (NAS) Fort Worth Joint Reserve Base - 768579	Hole Number: 558C

SDIc:\ltd_form\et_paul\Htrwp1.xls
7/27/00

HTRW DRILLING LOG (continuation sheet)

Hole Number S 556

Project: Naval Air Station (NAS) Fort Worth
Joint Reserve Base - 768579

Geologist: Duhon

Sheet 2 of 2 Sheets

Elev (ft)	Depth (ft) bgs	Description of Materials	USCS/ Litho	Field Screening Results (ppm)	Geotech Sample or Core Box No	Analytical Sample No	Recovery (ft)	Remarks
	0–1	u dark yellowish brown, silty clay, herbaceous, calc. nod.	OL			0-2 BM 0009 0010	2/4	
	1–2	↓				↓		
	2–3	↓				2-4 BM 0011 0012	2/4	
	3–4	yellowish brown, v. calc. nod, orange mott'l				↓	2/4	4'
	4–5	TD @ 4' bgs						
	5–6							
	6–7							
	7–8							
	8–9							
	9–0							

Project. Naval Air Station (NAS) Fort Worth Joint Reserve Base - 768579

Hole Number S 55E

IT CORPORATION
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FIELD ACTIVITY DAILY LOG CONTINUATION SHEET

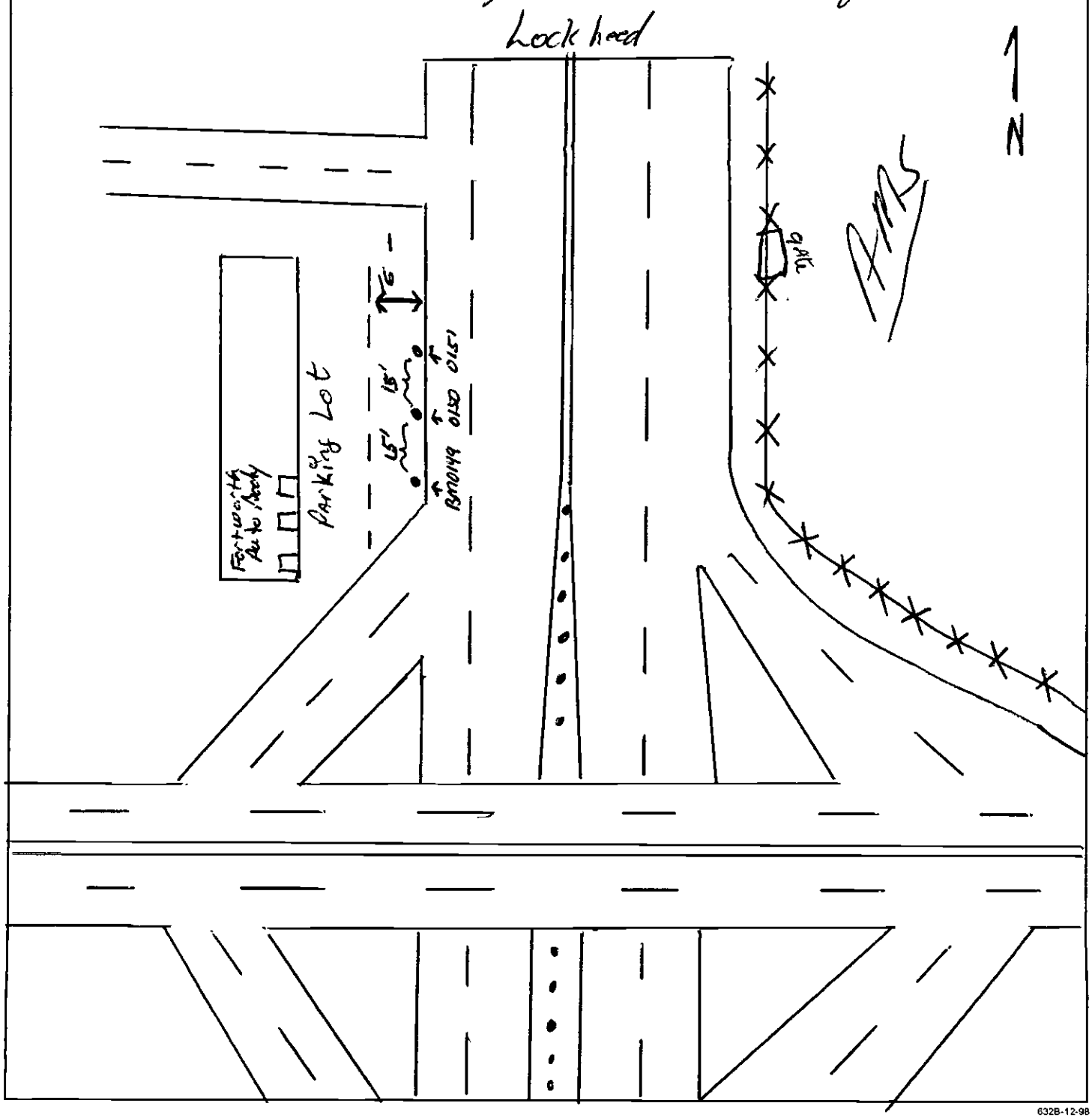
DAILY LOG				
	DATE	09	20	01
	NO			
	SHEET 1	OF 2		

774902

PROJECT NAME	Aerospace Museum AMS	PROJECT NO	3A020601
FIELD ACTIVITY SUBJECT	Hand Auger: (0-12") soil Collection		

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS

0800 gather equipment / paper work
1330 meet w/ Randall McDaniel to get equipment from last sampling event on east side of Spur 341



IT CORPORATION
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698 95

FIELD ACTIVITY DAILY LOG CONTINUATION SHEET

DAILY LOG				
	DATE	09	20	01
	NO			
	SHEET	2	OF	2

774902

PROJECT NAME	Aerospace Museum	PROJECT NO	3A020601
FIELD ACTIVITY SUBJECT	Hand Auger 0-12"		

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS

Note: has been raining on and off during the day

1340 @ location just west of original excavation in the AMRS area.

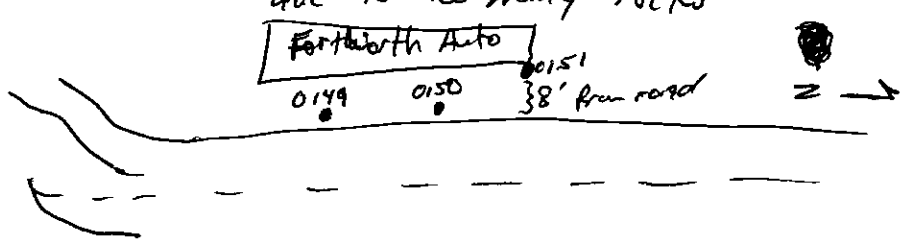
- will collect 3 x 4oz jar samples from 0-12" @ 15' apart and test for total lead.
- also will take pictures and send to Larry Tyner

1415 collect BM0149 ⇒ 0-12" (1 x 4oz jar) * 5' from road

1445 collect BM0150 ⇒ 0-12" (1 x 4oz jar) * 5' from road

1515 collect BM0151 ⇒ 0-12" (1 x 4oz jar) * ~~5' from road~~ 8'

* had to move more west (the spot was take 8' from road) due to too many rocks



1540 Get site back to office to pack + ship samples

632B-12-98

TAB

APPENDIX C

APPENDIX C

DATA QUALITY SUMMARY REPORT/ANALYTICAL RESULTS FROM DECEMBER 2000 INVESTIGATION

Naval Air Station (NAS) Fort Worth Joint Reserve Base
Carswell Aerospace Museum Site (AMS) Sampling
Data Quality Summary Report
Project No 768579 Delivery Order 0039

December 2000

1 0 Overview

Thirty (36) soil samples were collected in support of the Naval Air Station (NAS) Fort Worth Joint Reserve Base Carswell Aerospace Museum Site (AMS) Sampling Samples were submitted to Kemron Environmental Services (KEMM) and analyzed for the following analyses benzo(a) pyrene by SW8310 , synthetic precipitate leaching procedure (SPLP) benzo(a)pyrene by SW1312/SW8310, metals by SW6010B and synthetic precipitate leaching procedure (SPLP) metals by SW1312/SW6010B QC samples consisted of the following types and quantities four (4) field duplicates (FD), three (3) matrix spike/matrix spike duplicate (MS/MSD) and one (1) equipment rinsate (ER) An analytical summary table cross-referencing sample location, sample number, sample date and contaminants of concern is presented in Attachment A

Greater than ten (10) percent of samples were validated and reviewed in accordance with the *"Naval Air Station (NAS) Fort Worth Joint Reserve Base Carswell Field Basewide Quality Assurance Project Plan (IT, February 2000)"* Table 1 0-1 and Table 1 0-2 defines validation data and laboratory data qualifiers assigned to analytical results, respectively.

Table 1.0-1 Validation Data Qualifier Definitions

Validation Qualifier	Validation Data Qualifier Definition
U	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit
J	The associated value is an estimated quantity
R	The data are unusable. (Note Analyte may or may not be present)
UJ	The material was analyzed for, but was not detected The associated value is an estimate and may be inaccurate or imprecise
nv	Data not validated

Table 1.0-2 Laboratory Data Qualifier Definitions

Data Qualifier	Laboratory Data Qualifier Definition
J	The analyte was positively identified, the quantitation is estimation
U	The material was analyzed for, but was not detected The associated numerical value is at or below the method detection limit (MDL)
F	The analyte was positively identified but the associated numerical value is below the reporting limit (RL)
R	The data are unusable due to deficiencies in the ability to analyze the sample and meet QC criteria
B	The analyte was found in an associated blank, as well as in the sample
M	A matrix effect was present
S	To be applied to all field screening data
T	Tentatively identified compound (using Gas Chromatography/Mass Spectroscopy (GC/MS))

Data Validation Summary Report is presented in Attachment B

2 0 Summary

Data were evaluated to verify compliance with precision, accuracy and completeness. To verify that project Data Quality Objectives (DQOs) were met, laboratory analytical results and data packages were examined for compliance with SW846 SW8310 and SW6010B method criteria Laboratory non-conformances and discrepancies in the data were also examined to determine their impact on the data The results of this review are presented in the following sections

2 1 Sample Receipt and Analytical Holding Times

All sample results generated by the laboratory during this investigation have been reviewed with respect to condition of sample receipt from the laboratory, chain of custody and analysis holding times All coolers were received by Kemron Environmental Services, Inc in good condition under proper chain of custody All extraction and analytical holding times were met

2 2 Rejected Data

No data was qualified either by validator or the laboratory as rejected ("R")

2 3 **Blank Results**

A description of the type of blank samples which were collected, processed and evaluated for background and/or process contamination during this sampling are as follows

* Equipment rinsate (ER) is a sample of ASTM Type II reagent grade water poured into or over or pumped through the sampling device, collected in a sample container, and transported to the laboratory for analysis Equipment rinsates are used to assess the effectiveness of equipment decontamination procedures Equipment rinsates were collected on a daily basis during this investigation

* Method blanks are used to assess and document contamination resulting from the analytical process A method blank is an analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing The method blank shall be carried through the complete sample preparation and analytical procedure

* Continuing Calibration Blanks (CCBs) are used to assess and document contamination resulting from laboratory activities CCBs are analyzed after every initial and continuing calibration verification

Field sample concentrations were evaluated to determine if the sample results could have been biased by the presence of any contamination measured in associated method blanks and/or continuing calibration blanks Results affected by method blank and/or continuing calibration blank contamination are summarized in Table 2 3-1

Table 2.3-1 Summary of Method Blank, Equipment Rinsate and Continuing Calibration Blank Contamination

Sample Delivery Group	Sample Number	Contaminant (Level of contamination)	Action
L0012122	WG88595-BLK (SW6010B)	Total Zinc (0 608mg/kg)	No action necessary, total zinc results for all associated samples were 5x greater than the level of method blank contamination
	WG88391-BLK (SW6010B)	Total Silver (1 5ug/L)	Total silver for sample BM8001 should be considered estimated due to method blank contamination
	WG88862-BLK (SPLP SW6010B)	Silver (1 7ug/L)	Silver results for BM0022 and BM0021 were "U" qualified due to method blank contamination
	BM8001 ER (SW6010B)	Silver (1 45ug/L)	Total silver for sample BM0022 was "U" qualified due to calibration blank contamination
	CCB2 @ 12/8/00 11 19 am (SW6010B)	Total Silver (1 44ug/L)	Total silver for sample BM8001 should be considered estimated due to calibration blank contamination
	CCB1 @ 12/15/00 9 32 pm CCB2 @ 12/15/00 10 24pm (SPLP SW6010B)	SPLP Silver (1 62ug/L) SPLP Silver (1 69ug/L)	Silver results for BM0022 and BM0021 were "U" qualified due to calibration blank contamination
	CCB3 @ 12/15/00 1 55 pm (SPLP SW6010B)	SPLP Lead (-3 92ug/L)	Lead results for BM0011 should be considered estimated due to calibration blank contamination
	CCB1 @ 12/15/00 2 48pm (SPLP SW6010B)	SPLP Nickel (-4 28ug/L)	Nickel results for BM0017and BM0018 should be considered estimated due to calibration blank contamination

2 4 **Analytical Accuracy Assessment**

MS/MSD & Laboratory Control Sample (LCS) were used to measure analytical accuracy as described in SW846 SW8310 and SW6010B methodology Results indicate that an acceptable level of analytical accuracy was achieved Table 2 4-1 summarizes MS/MSD and LCS spike failures

Table 2.4-1 Summary of MS/MSD and LCS Percent (%) Recovery Failures

Sample Delivery Group	Sample Number	Bias	Action
L0012122	BM0027 (MS/MSD) (SW6010B)	Zinc (High bias)	Total zinc results for samples BM0027, BM0031 and BM0033 were qualified as estimated "J"
	BM0022 (MS/MSD) (SPLP SW8310)	Benzo(a)pyrene (Low bias)	Benzo(a)pyrene results for samples BM0021 and BM0022 were qualified as estimated ("UJ")

2 5 **Analytical Precision**

Laboratory duplicate and matrix spike/matrix spike duplicate analyses were used to measure precision as described by SW846 SW8310 and SW6010B methodology Analytical precision is calculated based on the following formula

$$RPD = \left| \frac{(A-B)}{(A+B)/2} \right| 100$$

where

RPD = Relative Percent Difference
A = original result
B = duplicate result

A high RPD between an original sample and its field duplicate may be attributable to the difference in sample matrix or distribution of the contaminant within the sample, rather than the precision of the collection process Also, when "estimated" results are reported, there is a potential for increased variability between the primary and duplicate sample results This occurs because, at low concentrations, the relative difference in results is magnified by the RPD calculation even though the results are comparable in absolute terms There is also increased uncertainty in the results as the lower limit of detection is approached due to decreasing analytical accuracy The RPD calculation cannot be performed in cases where non-detected results are reported with corresponding samples that contain detectable concentrations Laboratory duplicate and MS/MSD RPD failures ($RPD_{(Metals)} > 50$, $RPD_{(Organics)} > 50$) are summarized in Table 2 5-1

Table 2.5-1 Summary of MS/MSD and Field Duplicate RPD QC Failures

Sample Delivery Group	Sample Number	Contaminant	Action
L0012122	BM0022 (MS/MSD) (SPLP SW8310)	Benzo(a)pyrene (78 4)	Benzo(a)pyrene result for samples BM0021 and BM0022 were qualified as estimated "UJ"
	BM0027 (MS/MSD) (SW6010B)	Zinc (92 63)	Total Zinc results for BM0027, BM0031 and BM0033 were qualified as estimated "J"
	BM0012 (FD) (SPLP SW6010B)	Zinc (75 8) Lead (134 0)	Zinc and lead results for BM0011 were qualified as estimated "J"
	BM0034 (FD) (SPLP SW6010B)	Zinc (113 6)	Zinc results for BM0033 were qualified as estimated "J"

2 6 Data Completeness

Completeness is calculated for the aggregation of data for each analyte measured during the Naval Air Station (NAS) Fort Worth Joint Reserve Base Carswell Field Aerospace Museum Site Sampling Formula for calculating completeness is listed below

% completeness = (number of non-rejected (i.e , non -"R" flagged) results/number of possible results) x 100

The requirement for completeness is 100% for soil samples (possible results for soil matrix includes SPLP analytical results)

% Completeness $_{(Soil)}$ = (99/ 99) x100 = 100%

2 7 **Data Useability**

Data Quality Objectives (DQOs) provide an internal guide for control and review to verify that data are scientifically sound, defensible, and of known and acceptable quality Factors such as accuracy, precision, and completeness were evaluated to determine if the project's DQOs were met A review of the data revealed that most QA/QC indicators were within acceptable control limits

The overall results of the analyses suggest that representative samples were collected and analyzed, and the results are indicative of the media analyzed The data are considered representative of site conditions and are usable for their intended purpose

3 0 **Attachments**

Attachment A - Analytical Summary Table

Attachment B - Data Validation Summary Report

Attachment C - Laboratory Reported Results

Attachment A - Analytical Summary Table

Delivery Order 0039
Aerospace Museum Site (AMS)
NAS Fort Worth
Project Number 768579

Sample Location	Sample Name	Sample Number	Laboratory ID	Date Sampled	Sample Depth	Analytical Suite
Aerospace Museum Additional Sampling - Fence Sampling						
Fence1	FENCE1-GENS-BM0001-REG	BM0001	L0012122 02	05-Dec 00	---	Total Zinc by SW6010B
Fence2	FENCE2-GENS-BM0002-REG	BM0002	L0012122 03	05-Dec 00	---	Total Zinc by SW6010B
	FENCE2 GENS-BM0002MS-MS	BM0002MS	L0012122-04	05 Dec-00	---	Total Zinc by SW6010B
	FENCE2-GENS-BM0002MSD-MSD	BM0002MSD	L0012122-05	05 Dec-00	---	Total Zinc by SW6010B
Aerospace Museum Additional Sampling - Confirmation Sampling						
S52C	S52C-SS-BM0003-REG	BM0003	L0012122-06 L0012122-07 (SPLP)	05 Dec-00	0 0 2 0'	Zinc by SW6010B & SPLP Zinc by SW1312/SW6010B
	S52C-SO-BM0004-REG	BM0004	L0012122-08 L0012122-09 (SPLP)	05 Dec-00	2 0-4 0'	Zinc by SW6010B & SPLP Zinc by SW1312/SW6010B
	S52C-SO-BM0004MS-MS	BM0004MS	L0012122 10 L0012122 11 (SPLP)	05-Dec 00	2 0-4 0	Zinc by SW6010B & SPLP Zinc by SW1312/SW6010B
	S52C-SO-BM0004MSD-MSD	BM0004MSD	L0012122 12 L0012122 13 (SPLP)	05 Dec 00	2 0 4 0'	Zinc by SW6010B & SPLP Zinc by SW1312/SW6010B
S53C	S53C-SS-BM0005-REG	BM0005	L0012122 14 L0012122 15 (SPLP)	05 Dec-00	0 0-2 0'	Zinc by SW6010B & SPLP Zinc by SW1312/SW6010B
	S53C-SO-BM0006-REG	BM0006	L0012122 16 L0012122 17 (SPLP)	05-Dec-00	2 0-4 0'	Zinc by SW6010B & SPLP Zinc by SW1312/SW6010B
S54C	S54C-SS-BM0007-REG	BM0007	L0012122 18 L0012122 19 (SPLP)	05-Dec 00	0 0 2 0'	Zinc by SW6010B & SPLP Zinc by SW1312/SW6010B
	S54C-SO-BM0008-REG	BM0008	L0012122 20 L0012122 21 (SPLP)	05 Dec-00	2 0 4 0'	Zinc by SW6010B & SPLP Zinc by SW1312/SW6010B
S55C	S55C-SS-BM0009-REG	BM0009	L0012122 22 L0012122 23 (SPLP)	05-Dec-00	0 0 2 0	Zinc & Lead by SW6010B & SPLP Zinc & Lead by SW1312/SW6010B
	S55C-SS-BM0010-FD	*BM0010*	L0012122 24 L0012122 25 (SPLP)	05-Dec-00	*0 0-2 0'*	Zinc & Lead by SW6010B & SPLP Zinc & Lead by SW1312/SW6010B
	S55C-SO-BM0011-REG	BM0011	L0012122 26 L0012122 27 (SPLP)	05-Dec 00	2 0 4 0'	Zinc & Lead by SW6010B & SPLP Zinc & Lead by SW1312/SW6010B
	S55C-SO-BM0012-FD	*BM0012*	L0012122 28 L0012122 29 (SPLP)	05 Dec-00	*2 0-4 0*	Zinc & Lead by SW6010B & SPLP Zinc & Lead by SW1312/SW6010B
S58C	S58C-SS-BM0013-REG	BM0013	L0012122-30 L0012122 31 (SPLP)	05 Dec-00	0 0-2 0'	Zinc by SW6010B & SPLP Zinc by SW1312/SW6010B
	S58C-SO-BM0014-REG	BM0014	L0012122 32 L0012122 33 (SPLP)	05-Dec-00	2 0-4 0'	Zinc by SW6010B & SPLP Zinc by SW1312/SW6010B
S59C	S59C-SS-BM0015-REG	BM0015	L0012122-34 L0012122 35 (SPLP)	05-Dec-00	0 0-2 0'	Zinc by SW6010B & SPLP Zinc by SW1312/SW6010B
	S59C-SO-BM0016-REG	BM0016	L0012122 36 L0012122-37 (SPLP)	05-Dec-00	2 0 4 0	Zinc by SW6010B & SPLP Zinc by SW1312/SW6010B
S62C	S62C-SS-BM0017-REG	BM0017	L0012122 38 L0012122 39 (SPLP)	05 Dec-00	0 0 2 0	Zinc & Nickel by SW6010B & SPLP Zinc & Nickel by SW1312/SW6010B
	S62C-SO-BM0018-REG	BM0018	L0012122 40 L0012122-41 (SPLP)	05-Dec-00	2 0-4 0'	Zinc & Nickel by SW6010B & SPLP Zinc & Nickel by SW1312/SW6010B
OT3848SAC	OT3848SAC-SS-BM0019-REG	BM0019	L0012122-42 L0012122-43 (SPLP)	05-Dec-00	0 0-2 0	Lead by SW6010B & SPLP Lead SW1312/SW6010B
	OT3848SAC-SO-BM0020-REG	BM0020	L0012122 44 L0012122-45 (SPLP)	05-Dec-00	2 0-4 0	Lead by SW6010B & SPLP Lead SW1312/SW6010B
OT3801SAC	OT3801SAC-SS-BM0021-REG	BM0021	L0012122-46 L0012122-47 (SPLP)	05 Dec 00	0 0-2 0'	Silver by SW6010B & Benzo(a)pyrene by SW8310 & SPLP Silver by SW1312/SW6010B & SPLP Benzo(a)pyrene by SW1312/SW8310
	OT3801SAC-SO-BM0022-REG	BM0022	L0012122-48 L0012122-49 (SPLP)	05-Dec-00	2 0-4 0	Silver by SW6010B & Benzo(a)pyrene by SW8310 & SPLP Silver by SW1312/SW6010B & SPLP Benzo(a)pyrene by SW1312/SW8310
	OT3801SAC-SO-BM0022MS-MS	BM0022MS	L0012122 50 L0012122 51 (SPLP)	05 Dec-00	2 0 4 0'	Silver by SW6010B & Benzo(a)pyrene by SW8310 & SPLP Silver by SW1312/SW6010B & SPLP Benzo(a)pyrene by SW1312/SW8310
	OT3801SAC-SO-BM0022MSD-MSD	BM0022MSD	L0012122 52 L0012122 53 (SPLP)	05 Dec-00	2 0-4 0'	Silver by SW6010B & Benzo(a)pyrene by SW8310 & SPLP Silver by SW1312/SW6010B & SPLP Benzo(a)pyrene by SW1312/SW8310

Carswell AFB
Delivery Order 0039
Aerospace Museum Site (AMS)
NAS Fort Worth
Project Number 768579

Aerospace Museum Additional Sampling - Source & Extent Sampling

S52F	S52F-SS-BM0023-REG	BM0023	L0012122 54 L0012122 55 (SPLP)	05 Dec 00	0 0 2 0	Zinc by SW6010B & SPLP Zinc by SW1312/SW6010B
	S52F-SO-BM0024-REG	BM0024	L0012122 56 L0012122 57 (SPLP)	05 Dec 00	2 0-4 0	Zinc by SW6010B & SPLP Zinc by SW1312/SW6010B
S53F	S53F-SS-BM0025-REG	BM0025	L0012122 58 L0012122-59 (SPLP)	05 Dec 00	0 0 2 0	Zinc by SW6010B & SPLP Zinc by SW1312/SW6010B
	S53F-SO-BM0026-REG	BM0026	L0012122-60 L0012122-61 (SPLP)	05 Dec 00	2 0-4 0'	Zinc by SW6010B & SPLP Zinc by SW1312/SW6010B
S54F	S54F-SS-BM0027-REG	BM0027	L0012122-62 L0012122-63 (SPLP)	05-Dec-00	0 0 2 0	Zinc by SW6010B & SPLP Zinc by SW1312/SW6010B
	S54F-SS-BM0027MS-MS	*BM0027MS*	L0012122-64 L0012122-65 (SPLP)	05 Dec 00	*0 0 2 0'*	Zinc by SW6010B & SPLP Zinc by SW1312/SW6010B
	S54F-SS-BM0027-MSD-MSD	*BM0027MSD*	L0012122-66 L0012122-67 (SPLP)	05 Dec 00	*0 0-2 0'*	Zinc by SW6010B & SPLP Zinc by SW1312/SW6010B
	S54F-SO-BM0028-REG	BM0028	L0012122-68 L0012122-69 (SPLP)	05 Dec 00	2 0-4 0	Zinc by SW6010B & SPLP Zinc by SW1312/SW6010B
S55F	S55F-SS-BM0029-REG	BM0029	L0012122 70 L0012122 71 (SPLP)	05 Dec-00	*0 0-2 0*	Zinc by SW6010B & SPLP Zinc by SW1312/SW6010B
	S55F-SO-BM0030-REG	BM0030	L0012122 72 L0012122 73 (SPLP)	05-Dec-00	2 0 4 0'	Zinc by SW6010B & SPLP Zinc by SW1312/SW6010B
S52W	S52W-SS-BM0031-REG	BM0031	L0012122 74 L0012122 75 (SPLP)	05-Dec 00	0 0 2 0	Zinc by SW6010B & SPLP Zinc by SW1312/SW6010B
	S52W-SS-BM0032-FD	*BM0032*	L0012122 76 L0012122 77 (SPLP)	05 Dec 00	2 0 4 0'	Zinc by SW6010B & SPLP Zinc by SW1312/SW6010B
	S52W-SO-BM0033-REG	BM0033	L0012122 78 L0012122 79 (SPLP)	05 Dec-00	0 0-2 0	Zinc by SW6010B & SPLP Zinc by SW1312/SW6010B
	S52W-SO-BM0034-FD	*BM0034*	L0012122-80 L0012122-81 (SPLP)	05 Dec 00	*2 0-4 0*	Zinc by SW6010B & SPLP Zinc by SW1312/SW6010B
S53W	S53W-SS-BM0035-REG	BM0035	L0012122 82 L0012122 83 (SPLP)	05 Dec 00	0 0 2 0	Zinc by SW6010B & SPLP Zinc by SW1312/SW6010B
	S53W-SO-BM0036-REG	BM0036	L0012122 84 L0012122-85 (SPLP)	05 Dec 00	2 0-4 0'	Zinc by SW6010B & SPLP Zinc by SW1312/SW6010B
S54W	S54W-SS-BM0037-REG	BM0037	L0012122 86 L0012122-87 (SPLP)	05-Dec-00	0 0-2 0	Zinc by SW6010B & SPLP Zinc by SW1312/SW6010B
	S54W-SO-BM0038-REG	BM0038	L0012122 88 L0012122-89 (SPLP)	05-Dec-00	2 0-4 0	Zinc by SW6010B & SPLP Zinc by SW1312/SW6010B
S55W	S55W-SS-BM0039-REG	BM0039	L0012122 90 L0012122-91 (SPLP)	05 Dec 00	0 0 2 0	Zinc by SW6010B & SPLP Zinc by SW1312/SW6010B
	S55W-SO-BM0040-REG	BM0040	L0012122 92 L0012122 93 (SPLP)	05-Dec-00	2 0-4 0'	Zinc by SW6010B & SPLP Zinc by SW1312/SW6010B

Aerospace Museum Additional Sampling - Field QC

Sample Location	Sample Name	Sample Number	Laboratory ID	Date Sampled	Analytical Suite	Associations
AMS-FLDQC	AMS-FLDQC-BW-BM8001-ER	BM8001	L0012122 01	05 Dec 00	Zinc Lead, Silver & Nickel by SW6010B & Benzo(a)pyrene by SW8310	BM0001 through BM0040

Ship Samples Kemron Environmental Services Inc
Attn Janice Holland
109 Starlite Park
Marietta, Ohio 45750
Phone (740) 373-4835
Fax (740) 373-4835

Attachment B - Data Validation Summary Report

DATA VALIDATION SUMMARY REPORT

PROJECT:	Carswell Air Force Base; Aerospace Museum, Dec'00
LABORATORY:	Kemron Environmental Services
WORK ORDERS:	L0012122
MATRIX:	Soils
VALIDATION LEVEL:	III
ANALYSES METHODS:	Benzo(a)pyrene by SW846 8310, Metals by SW846 6010B and SPLP Metals by SW1312/SW6010B.

1.0 INTRODUCTION

Soil samples were submitted to Kemron Environmental Services for analyses. Validated samples are listed in Table 1-1.

10% of the samples were validated and reviewed in accordance with the "EPA Functional Guidelines", and associated methods. All results reported between the MDL and RL were reported as estimated by the laboratory. Validation qualifiers were assigned due to matrix, blank contamination, field duplicated precision, and serial dilution problems. No data were rejected due to laboratory QC failures. Specific findings are discussed in detail in the following sections.

Table 1-1. Sample Information

Work Order Number	Sample Date	Sample Number	Lab ID	PAH by 8310 benzo(a)pyrene	Metals by 6010B	Field QC
L0012122	12/5/00	BM0002	-05	NA	12/11/00	BM8001 (ER)
		BM0004	-08			
		BM0009	-22			
		BM0011	-26			
		BM0021	-46	12/12/00	12/12/00	
		BM0022	-48			
		BM0027	-62	NA	12/12/00	
		BM0031	-74			
		BM0033	-78			
L0012122 (SPLP)		BM0004	-09	NA	12/15/00	NA
		BM0009	-23			
		BM0011	-27			
		BM0021	-47	12/13/00		
		BM0022	-49			
		BM0027	-63	NA		
		BM0031	-75			
		BM0033	-79			

NA = Not Analyzed
ER = Equipment Rinsate

2.0 PAH-Method 8310 (benzo(a)pyrene)

2.1 Sampling Documentation

Work Order L0012122. Chain-of-custody (COC) records indicate that samples were received in good condition and properly preserved. No qualifiers were assigned.

2.2 Holding Times

Work Order L0012122: Samples were analyzed within the specified holding time. No qualifiers were assigned.

2.3 Calibrations

2.3.1 Initial Calibration

Work Order L0012122: Initial calibrations associated with the samples were performed in accordance with the method and QAPP requirements. No qualifiers were assigned

2.3.2 Continuing Calibration

Work Order L0012122: Continuing calibrations associated with the samples were performed in accordance with the method and QAPP requirements. No qualifiers were assigned.

2.4 Blanks

2.4.1 Method/Preparation Blanks

Work Order L0012122: Associated method blanks detected no contaminants. No qualifiers were assigned.

2.4.2 Equipment Rinse

Work Order L0012122: Associated equipment rinse (BM8001) detected no contaminants. No qualifiers were assigned.

2.5 System Monitoring Compounds (surrogates)

Work Order L0012122: Surrogate spike recoveries (%R) were within QC limits. No qualifiers were assigned.

2.6 Matrix Spike (MS) /Matrix Spike Duplicate (MSD)

Work Order L0012122: MS/MSD and SPLP-MS/MSD recoveries were evaluated. Samples BM0021 and BM0022 SPLP results for benzo(a)pyrene were estimated ("UJ" qualified) due to high RPD's and low % recoveries.

2.7 Laboratory Control Sample (LCS)

Work Order L0012122: LCS analysis exhibited acceptable results. No qualifiers were assigned.

2.8 Field Duplicates

Work Order L0012122: There were no field duplicates associated with validated samples analyzed for benzo(a)pyrene. No qualifiers were assigned.

2.9 Compound Quantitation

Based on a Level III validation, samples were identified and generally quantified appropriately.

2.10 Overall Assessment of the Data

Data for the validated samples are acceptable as qualified.

3.0 INORGANIC METALS (TOTAL & SPLP) ANALYSIS by 6010B

3.1 Sampling Documentation

Work Order L0012122. Chain-of-custody (COC) records indicate that samples were received in good condition and properly preserved. No qualifiers were assigned.

3.2 Holding Times

Work Order L0012122: Validated samples were analyzed within the specified holding time requirements. No qualifiers were assigned.

3.3 Calibrations

3.3.1 Initial Calibration Verification

Work Order L0012122: Initial calibration verifications were performed immediately following instrument standardization. All QC requirements were met. No qualifiers were assigned.

3.3.2 Continuing Calibration Verification

Work Order L0012122: Continuing calibration verifications were within control limits. No qualifiers were assigned.

3.4 Blanks

3.4.1 Method/Preparation Blanks

Work Order L0012122: Associated method blank detected silver. SPLP silver results for samples BM0021 and BM0022 were changed to non-detect status and "U" qualified

3.4.2 Calibration Blanks

Work Order L0012122: Associated calibration blanks detected several contaminants. Total silver results for sample BM0022 and SPLP silver results for samples BM0021 and BM0022 were changed to non-detect status and "U" qualified.

3.5 Matrix Spike (MS) /Matrix Spike Duplicate (MSD) / Duplicate Analysis

Work Order L0012122: Total Metals-MS/MSD and SPLP Metals-MS/MSD were evaluated. Total zinc results for samples BM0027, BM0031 and BM0033 were estimated ("J" qualified) due to high RPD's and failing % recoveries.

3.6 Laboratory Control Sample (LCS)

Work Order L0012122: LCS analysis exhibited acceptable results. No qualifiers were assigned

3.7 Interference Check Samples

Work Order L0012122: Interference check samples analyzed were within control limits. No qualifiers were assigned.

3.8 Field Duplicates

Work Order L0012122: Four sets of original and field duplicates were evaluated. Samples BM0011 (original) SPLP results for lead and zinc and BM0033 (original) SPLP results for zinc were estimated ("J" qualified) due to field duplicate RPD exceeding QC criteria.

3.9 Serial Dilution

Work Order L0012122: Serial dilutions for total zinc and SPLP zinc reported %Difference >10%. All positive results for validated samples (total and SPLP-Metals) were estimated ("J" qualified).

3.10 Compound Quantitation and Project Reporting Limits

Based on a Level III validation, samples were identified and generally quantified appropriately.

3.11 Overall Assessment of the Data

Data for the validated samples are acceptable as qualified.

Attachment C - Laboratory Reported Results

NAS Fort Worth
Aerospace Museum Site (AMS)
Project No 768579 Delivery Order 0039

Site	Location	Sample No	Sample Purpose	Sample Date	Start Depth (FT)	End Depth (FT)	Parameter	CAS No	Result	Reporting Limit	Method Detection Limit	Units	Laboratory Qualifier	Validation Qualifier	User Test Panel	Sample Type	Filtered	Detect
Aerospace Museum	FENCE1	BM0001	REG	5-Dec-00	---	---	Zinc	7440-66-6	17100	50	0 47	mg/kg	M	nv	ZINC	GENS	N	Y
Aerospace Museum	FENCE2	BM0002	REG	5-Dec-00	---	---	Zinc	7440-66-6	27100	100	0 47	mg/kg			ZINC	GENS	N	Y
Aerospace Museum	S52C	BM0003	REG	5-Dec-00	0	2	Zinc	7440-66-6	167	20	3 2	ug/L		nv	SPLP-ZINC	SS	N	Y
Aerospace Museum	S52C	BM0003	REG	5-Dec-00	0	2	Zinc	7440-66-6	126	1 3	0 47	mg/kg		nv	ZINC	SS	N	Y
Aerospace Museum	S52C	BM0004	REG	5-Dec-00	2	4	Zinc	7440-66-6	18 9	20	3 2	ug/L	F	J	SPLP-ZINC	SO	N	Y
Aerospace Museum	S52C	BM0004	REG	5-Dec-00	2	4	Zinc	7440-66-6	30 6	1 2	0 47	mg/kg		J	ZINC	SO	N	Y
Aerospace Museum	S53C	BM0005	REG	5-Dec-00	0	2	Zinc	7440-66-6	27 9	20	3 2	ug/L		nv	SPLP-ZINC	SS	N	Y
Aerospace Museum	S53C	BM0005	REG	5-Dec-00	0	2	Zinc	7440-66-6	117	1 2	0 47	mg/kg		nv	ZINC	SS	N	Y
Aerospace Museum	S53C	BM0006	REG	5-Dec-00	2	4	Zinc	7440-66-6	79 1	20	3 2	ug/L		nv	SPLP-ZINC	SO	N	Y
Aerospace Museum	S53C	BM0006	REG	5-Dec-00	2	4	Zinc	7440-66-6	27 9	1 2	0 47	mg/kg		nv	ZINC	SO	N	Y
Aerospace Museum	S54C	BM0007	REG	5-Dec-00	0	2	Zinc	7440-66-6	331	20	3 2	ug/L		nv	SPLP-ZINC	SS	N	Y
Aerospace Museum	S54C	BM0007	REG	5-Dec-00	0	2	Zinc	7440-66-6	64 5	1 2	0 47	mg/kg		nv	ZINC	SS	N	Y
Aerospace Museum	S54C	BM0008	REG	5-Dec-00	2	4	Zinc	7440-66-6	157	20	3 2	ug/L		nv	SPLP-ZINC	SO	N	Y
Aerospace Museum	S54C	BM0008	REG	5-Dec-00	2	4	Zinc	7440-66-6	29 6	1 2	0 47	mg/kg		nv	ZINC	SO	N	Y
Aerospace Museum	S55C	BM0009	REG	5-Dec-00	0	2	Lead	7439-92-1	171	1 2	0 33	mg/kg			LEAD	SS	N	Y
Aerospace Museum	S55C	BM0009	REG	5-Dec-00	0	2	Lead	7439-92-1	71 4	5	1 2	ug/L			SPLP-LEAD	SS	N	Y
Aerospace Museum	S55C	BM0009	REG	5-Dec-00	0	2	Zinc	7440-66-6	83 7	20	3 2	ug/L		J	SPLP-ZINC	SS	N	Y
Aerospace Museum	S55C	BM0009	REG	5-Dec-00	0	2	Zinc	7440-66-6	109	1 2	0 47	mg/kg		J	ZINC	SS	N	Y
Aerospace Museum	S55C	BM0010	FD	5-Dec-00	0	2	Lead	7439-92-1	206	1 2	0 33	mg/kg		nv	LEAD	SS	N	Y
Aerospace Museum	S55C	BM0010	FD	5-Dec-00	0	2	Lead	7439-92-1	45 1	5	1 2	ug/L		nv	SPLP-LEAD	SS	N	Y
Aerospace Museum	S55C	BM0010	FD	5-Dec-00	0	2	Zinc	7440-66-6	54 9	20	3 2	ug/L		nv	SPLP-ZINC	SS	N	Y
Aerospace Museum	S55C	BM0010	FD	5-Dec-00	0	2	Zinc	7440-66-6	96 2	1 2	0 47	mg/kg		nv	ZINC	SS	N	Y
Aerospace Museum	S55C	BM0011	REG	5-Dec-00	2	4	Lead	7439-92-1	13 6	1 2	0 33	mg/kg			LEAD	SO	N	Y
Aerospace Museum	S55C	BM0011	REG	5-Dec-00	2	4	Lead	7439-92-1	7 61	5	1 2	ug/L		J	SPLP-LEAD	SO	N	Y
Aerospace Museum	S55C	BM0011	REG	5-Dec-00	2	4	Zinc	7440-66-6	45	20	3 2	ug/L		J	SPLP-ZINC	SO	N	Y
Aerospace Museum	S55C	BM0011	REG	5-Dec-00	2	4	Zinc	7440-66-6	21 2	1 2	0 47	mg/kg		J	ZINC	SO	N	Y
Aerospace Museum	S55C	BM0012	FD	5-Dec-00	2	4	Lead	7439-92-1	17 1	1 2	0 33	mg/kg		nv	LEAD	SO	N	Y
Aerospace Museum	S55C	BM0012	FD	5-Dec-00	2	4	Lead	7439-92-1	38 5	5	1 2	ug/L		nv	SPLP-LEAD	SO	N	Y
Aerospace Museum	S55C	BM0012	FD	5-Dec-00	2	4	Zinc	7440-66-6	99 9	20	3 2	ug/L		nv	SPLP-ZINC	SO	N	Y
Aerospace Museum	S55C	BM0012	FD	5-Dec-00	2	4	Zinc	7440-66-6	28 7	1 2	0 47	mg/kg		nv	ZINC	SO	N	Y
Aerospace Museum	S58C	BM0013	REG	5-Dec-00	0	2	Zinc	7440-66-6	72 4	20	3 2	ug/L		nv	SPLP-ZINC	SS	N	Y
Aerospace Museum	S58C	BM0013	REG	5-Dec-00	0	2	Zinc	7440-66-6	33 3	1 2	0 47	mg/kg		nv	ZINC	SS	N	Y
Aerospace Museum	S58C	BM0014	REG	5-Dec-00	2	4	Zinc	7440-66-6	37 1	20	3 2	ug/L		nv	SPLP-ZINC	SO	N	Y
Aerospace Museum	S58C	BM0014	REG	5-Dec-00	2	4	Zinc	7440-66-6	21	1 1	0 47	mg/kg		nv	ZINC	SO	N	Y
Aerospace Museum	S59C	BM0015	REG	5-Dec-00	0	2	Zinc	7440-66-6	44	20	3 2	ug/L		nv	SPLP-ZINC	SS	N	Y
Aerospace Museum	S59C	BM0015	REG	5-Dec-00	0	2	Zinc	7440-66-6	33 9	1 1	0 47	mg/kg		nv	ZINC	SS	N	Y
Aerospace Museum	S59C	BM0016	REG	5-Dec-00	2	4	Zinc	7440-66-6	48 1	20	3 2	ug/L		nv	SPLP-ZINC	SO	N	Y
Aerospace Museum	S59C	BM0016	REG	5-Dec-00	2	4	Zinc	7440-66-6	22	1 2	0 47	mg/kg		nv	ZINC	SO	N	Y
Aerospace Museum	S62C	BM0017	REG	5-Dec-00	0	2	Nickel	7440-02-0	6 56	2 3	0 1	mg/kg		nv	NICKEL	SS	N	Y
Aerospace Museum	S62C	BM0017	REG	5-Dec-00	0	2	Nickel	7440-02-0	18 8	10	1	ug/L	F	nv	SPLP-NICKEL	SS	N	Y
Aerospace Museum	S62C	BM0017	REG	5-Dec-00	0	2	Zinc	7440-66-6	112	20	3 2	ug/L		nv	SPLP-ZINC	SS	N	Y
Aerospace Museum	S62C	BM0017	REG	5-Dec-00	0	2	Zinc	7440-66-6	63 6	1 2	0 47	mg/kg		nv	ZINC	SS	N	Y
Aerospace Museum	S62C	BM0018	REG	5-Dec-00	2	4	Nickel	7440-02-0	11	2 4	0 1	mg/kg		nv	NICKEL	SO	N	Y
Aerospace Museum	S62C	BM0018	REG	5-Dec-00	2	4	Nickel	7440-02-0	3 8	10	1	ug/L	F	nv	SPLP-NICKEL	SO	N	Y
Aerospace Museum	S62C	BM0018	REG	5-Dec-00	2	4	Zinc	7440-66-6	50 1	20	3 2	ug/L		nv	SPLP-ZINC	SO	N	Y
Aerospace Museum	S62C	BM0018	REG	5-Dec-00	2	4	Zinc	7440-66-6	32 1	1 2	0 47	mg/kg		nv	ZINC	SO	N	Y
Aerospace Museum	OT3848SAC	BM0019	REG	5-Dec-00	0	2	Lead	7439-92-1	20 2	1 2	0 33	mg/kg		nv	LEAD	SS	N	Y
Aerospace Museum	OT3848SAC	BM0019	REG	5-Dec-00	0	2	Lead	7439-92-1	29 3	5	1 2	ug/L		nv	SPLP-LEAD	SS	N	Y
Aerospace Museum	OT3848SAC	BM0020	REG	5-Dec-00	2	4	Lead	7439-92-1	6 99	1 1	0 33	mg/kg		nv	LEAD	SO	N	Y
Aerospace Museum	OT3848SAC	BM0020	REG	5-Dec-00	2	4	Lead	7439-92-1	4 11	5	1 2	ug/L	F	nv	SPLP-LEAD	SO	N	Y
Aerospace Museum	OT3801SAC	BM0021	REG	5-Dec-00	0	2	Benzo(a)pyrene	50-32-8	0 012	0 012	0 0029	mg/kg	U	U	BENZO(A)PYRENE	SS	N	N
Aerospace Museum	OT3801SAC	BM0021	REG	5-Dec-00	0	2	Silver	7440-22-4	1 2	1 2	0 1	mg/kg	U	U	SILVER	SS	N	N
Aerospace Museum	OT3801SAC	BM0021	REG	5-Dec-00	0	2	Benzo(a)pyrene	50-32-8	0 2	0 2	0 053	ug/L	U	UJ	SPLP-BENZOA	SS	N	N
Aerospace Museum	OT3801SAC	BM0021	REG	5-Dec-00	0	2	Silver	7440-22-4	1 46	10	0 45	ug/L	F	U	SPLP-SILVER	SS	N	Y
Aerospace Museum	OT3801SAC	BM0022	REG	5-Dec-00	2	4	Benzo(a)pyrene	50-32-8	0 013	0 013	0 0029	mg/kg	U	U	BENZO(A)PYRENE	SO	N	N
Aerospace Museum	OT3801SAC	BM0022	REG	5-Dec-00	2	4	Silver	7440-22-4	0 199	1 3	0 1	mg/kg	F	U	SILVER	SO	N	Y
Aerospace Museum	OT3801SAC	BM0022	REG	5-Dec-00	2	4	Benzo(a)pyrene	50-32-8	0 2	0 2	0 053	ug/L	U	UJ	SPLP-BENZOA	SO	N	N
Aerospace Museum	OT3801SAC	BM0022	REG	5-Dec-00	2	4	Silver	7440-22-4	1 67	10	0 45	ug/L	F	U	SPLP-SILVER	SO	N	Y
Aerospace Museum	S52F	BM0023	REG	5-Dec-00	0	2	Zinc	7440-66-6	163	20	3 2	ug/L		nv	SPLP-ZINC	SS	N	Y
Aerospace Museum	S52F	BM0023	REG	5-Dec-00	0	2	Zinc	7440-66-6	47	1 2	0 47	mg/kg		nv	ZINC	SS	N	Y

NAS Fort Worth
Aerospace Museum Site (AMS)
Project No. 768579 Delivery Order 0039

Site	Location	Sample No	Sample Purpose	Sample Date	Start Depth (FT)	End Depth (FT)	Parameter	CAS No	Result	Reporting Limit	Method Detection Limit	Units	Laboratory Qualifier	Validation Qualifier	User Test Panel	Sample Type	Filtered	Detect
Aerospace Museum	S52F	BM0024	REG	5-Dec-00	2	4	Zinc	7440-66-6	111	20	3 2	ug/L		nv	SPLP-ZINC	SO	N	Y
Aerospace Museum	S52F	BM0024	REG	5-Dec-00	2	4	Zinc	7440-66-6	33 7	1 2	0 47	mg/kg		nv	ZINC	SO	N	Y
Aerospace Museum	S53F	BM0025	REG	5 Dec-00	0	2	Zinc	7440-66-6	158	20	3 2	ug/L		nv	SPLP-ZINC	SS	N	Y
Aerospace Museum	S53F	BM0025	REG	5-Dec-00	0	2	Zinc	7440-66-6	185	1 2	0 47	mg/kg		nv	ZINC	SS	N	Y
Aerospace Museum	S53F	BM0026	REG	5-Dec-00	2	4	Zinc	7440-66-6	34 7	20	3 2	ug/L		nv	SPLP-ZINC	SO	N	Y
Aerospace Museum	S53F	BM0026	REG	5-Dec-00	2	4	Zinc	7440-66-6	25 2	1 1	0 47	mg/kg		nv	ZINC	SO	N	Y
Aerospace Museum	S54F	BM0027	REG	5-Dec-00	0	2	Zinc	7440-66-6	317	20	3 2	ug/L		J	SPLP-ZINC	SS	N	Y
Aerospace Museum	S54F	BM0027	REG	5-Dec-00	0	2	Zinc	7440-66-6	35 6	1 2	0 47	mg/kg	M	J	ZINC	SS	N	Y
Aerospace Museum	S54F	BM0028	REG	5-Dec-00	2	4	Zinc	7440-66-6	185	20	3 2	ug/L		nv	SPLP-ZINC	SO	N	Y
Aerospace Museum	S54F	BM0028	REG	5-Dec-00	2	4	Zinc	7440-66-6	29 3	1 2	0 47	mg/kg		nv	ZINC	SO	N	Y
Aerospace Museum	S55F	BM0029	REG	5-Dec-00	0	2	Zinc	7440-66-6	384	20	3 2	ug/L		nv	SPLP-ZINC	SS	N	Y
Aerospace Museum	S55F	BM0029	REG	5-Dec-00	0	2	Zinc	7440-66-6	84 8	1 1	0 47	mg/kg		nv	ZINC	SS	N	Y
Aerospace Museum	S55F	BM0030	REG	5-Dec-00	2	4	Zinc	7440-66-6	100	20	3 2	ug/L		nv	SPLP-ZINC	SO	N	Y
Aerospace Museum	S55F	BM0030	REG	5-Dec-00	2	4	Zinc	7440-66-6	35 7	1 1	0 47	mg/kg		nv	ZINC	SO	N	Y
Aerospace Museum	S52W	BM0031	REG	5-Dec-00	0	2	Zinc	7440-66-6	363	20	3 2	ug/L		J	SPLP-ZINC	SS	N	Y
Aerospace Museum	S52W	BM0031	REG	5-Dec-00	0	2	Zinc	7440-66-6	37 4	1 1	0 47	mg/kg		J	ZINC	SS	N	Y
Aerospace Museum	S52W	BM0032	FD	5-Dec-00	0	2	Zinc	7440-66-6	255	20	3 2	ug/L		nv	SPLP-ZINC	SS	N	Y
Aerospace Museum	S52W	BM0032	FD	5-Dec-00	0	2	Zinc	7440-66-6	37 4	1 3	0 47	mg/kg		nv	ZINC	SS	N	Y
Aerospace Museum	S52W	BM0033	REG	5-Dec-00	2	4	Zinc	7440-66-6	133	20	3 2	ug/L		J	SPLP-ZINC	SO	N	Y
Aerospace Museum	S52W	BM0033	REG	5-Dec-00	2	4	Zinc	7440-66-6	30 1	1 1	0 47	mg/kg		J	ZINC	SO	N	Y
Aerospace Museum	S52W	BM0034	FD	5-Dec-00	2	4	Zinc	7440-66-6	483	20	3 2	ug/L		nv	SPLP-ZINC	SO	N	Y
Aerospace Museum	S52W	BM0034	FD	5-Dec-00	2	4	Zinc	7440-66-6	39	1 3	0 47	mg/kg		nv	ZINC	SO	N	Y
Aerospace Museum	S53W	BM0035	REG	5-Dec-00	0	2	Zinc	7440-66-6	72 3	20	3 2	ug/L		nv	SPLP-ZINC	SS	N	Y
Aerospace Museum	S53W	BM0035	REG	5-Dec-00	0	2	Zinc	7440-66-6	22 2	1 2	0 47	mg/kg		nv	ZINC	SS	N	Y
Aerospace Museum	S53W	BM0036	REG	5-Dec-00	2	4	Zinc	7440-66-6	101	20	3 2	ug/L		nv	SPLP-ZINC	SO	N	Y
Aerospace Museum	S53W	BM0036	REG	5-Dec-00	2	4	Zinc	7440-66-6	12 1	1 1	0 47	mg/kg		nv	ZINC	SO	N	Y
Aerospace Museum	S54W	BM0037	REG	5-Dec-00	0	2	Zinc	7440-66-6	149	20	3 2	ug/L		nv	SPLP-ZINC	SS	N	Y
Aerospace Museum	S54W	BM0037	REG	5-Dec-00	0	2	Zinc	7440-66-6	25 8	1 1	0 47	mg/kg		nv	ZINC	SS	N	Y
Aerospace Museum	S54W	BM0038	REG	5-Dec-00	2	4	Zinc	7440-66-6	148	20	3 2	ug/L		nv	SPLP-ZINC	SO	N	Y
Aerospace Museum	S54W	BM0038	REG	5-Dec-00	2	4	Zinc	7440-66-6	30 6	1 2	0 47	mg/kg		nv	ZINC	SO	N	Y
Aerospace Museum	S55W	BM0039	REG	5-Dec-00	0	2	Zinc	7440-66-6	549	20	3 2	ug/L		nv	SPLP-ZINC	SS	N	Y
Aerospace Museum	S55W	BM0039	REG	5-Dec-00	0	2	Zinc	7440-66-6	28 5	1 2	0 47	mg/kg		nv	ZINC	SS	N	Y
Aerospace Museum	S55W	BM0040	REG	5-Dec-00	2	4	Zinc	7440-66-6	494	20	3 2	ug/L		nv	SPLP-ZINC	SO	N	Y
Aerospace Museum	S55W	BM0040	REG	5-Dec-00	2	4	Zinc	7440-66-6	44 8	1 2	0 47	mg/kg		nv	ZINC	SO	N	Y
Aerospace Museum	AMS-FLDQC	BM8001	ER	5-Dec-00	---	---	Benzo(a)pyrene	50-32-8	0 2	0 2	0 053	ug/L	U	nv	BENZO(A)PYRENE	BW	N	N
Aerospace Museum	AMS-FLDQC	BM8001	ER	5-Dec-00	---	---	Lead	7439-92-1	5	5	1 2	ug/L	U	nv	LEAD	BW	N	N
Aerospace Museum	AMS-FLDQC	BM8001	ER	5-Dec-00	---	---	Nickel	7440-02-0	10	10	1	ug/L	U	nv	NICKEL	BW	N	N
Aerospace Museum	AMS-FLDQC	BM8001	ER	5-Dec-00	---	---	Silver	7440-22-4	1 45	10	0 45	ug/L	F	nv	SILVER	BW	N	Y
Aerospace Museum	AMS-FLDQC	BM8001	ER	5-Dec-00	---	---	Zinc	7440-66-6	20	20	3 2	ug/L	U	nv	ZINC	BW	N	N

TAB

APPENDIX D

APPENDIX D

DATA QUALITY SUMMARY REPORT/ANALYTICAL RESULTS FROM MAY-SEPTEMBER 2001 EXCAVATION SAMPLES

Naval Air Station (NAS) Fort Worth Joint Reserve Base
Aerospace Museum Site (AMS)
Data Quality Summary Report
Project No 774902 Delivery Order 0003

October 2001

1 0 Overview

Ninety-six (96) soil samples were collected in support of NAS Fort Worth JRB *Aerospace Museum Site Excavation Activities*. Soil samples were submitted to Kemron Environmental Services and analyzed for total lead by SW6010B Several samples were also analyzed for Synthetic Precipitating Leaching Procedure (SPLP) lead by SW1312/SW6010B. Field QC samples consisted of the following types and quantities eight (8) field duplicates, four (4) matrix spike/matrix spike duplicates (MS/MSD) and two (2) equipment rinsates An analytical summary table cross-referencing sample location, sample number, and contaminants of concern is presented in Attachment A.

The majority of samples were validated and reviewed in accordance with the *US EPA Contract Laboratory Program National Functional Guidelines for Evaluating Inorganic Data Review (EPA, February 1994)* Data qualifiers assigned to results were based on guidance outlined in the referenced documents and the *Naval Air Station (NAS) Fort Worth Joint Reserve Base Carswell Field Basewide Quality Assurance Project Plan (IT, February 2000)*. Table 1.0-1 and Table 1 0-2 defines validation data and laboratory data qualifiers assigned to analytical results, respectively.

Table 1.0-1 Validation Data Qualifier Definitions

Validation Qualifier	Validation Data Qualifier Definition
U	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.
J	The associated value is an estimated quantity
R	The data are unusable (Note: Analyte may or may not be present.)
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise
nv	Data not validated

Table 1.0-2 **Laboratory Data Qualifier Definitions**

Data Qualifier	Laboratory Data Qualifier Definition
J	The analyte was positively identified, the quantitation is estimation
U	The material was analyzed for, but was not detected The associated numerical value is at or below the method detection limit (MDL)
F	The analyte was positively identified but the associated numerical value is below the reporting limit (RL).
R	The data are unusable due to deficiencies in the ability to analyze the sample and meet QC criteria
B	The analyte was found in an associated blank, as well as in the sample.
M	A matrix effect was present
S	To be applied to all field screening data.
T	Tentatively identified compound (using Gas Chromatography/Mass Spectroscopy (GC/MS))

Data Validation Summary Reports are presented in Attachment B

2.0 Summary

Data were evaluated to verify compliance with precision, accuracy, representativeness, comparability, completeness, and sensitivity. To verify that project Data Quality Objectives (DQOs) were met, laboratory analytical results and data packages were examined for compliance with SW846 SW6010B/SW7000 Series QC method criteria Laboratory non-conformances and discrepancies in the data were also examined to determine their impact on project DQOs. The results of this review are presented in the following sections

2.1 Sample Receipt and Analytical Holding Times

All sample results generated by the laboratory during this investigation have been reviewed with respect to condition of sample receipt from the laboratory, chain-of-custody and analysis holding times. All coolers were received by Kemron Environmental Services in good condition under proper chain-of-custody with the following exception

* Temperature of samples shipped on September 7th, 2001, chain-of-custody numbers 347821, 347824 were received at 15°C. Samples received at a temperature greater than 4±2°C, scheduled to be analyzed for lead only, would cause little bias or uncertainty with reported analytical results The laboratory was directed to proceed with sample analysis.

All extraction and analytical holding times were met.

2 2 Rejected Data

No data was qualified by the laboratory or after validation was completed as being rejected (R-flagged).

2 3 **Blank Results**

A description of the type of blank samples which were collected, processed and evaluated for background and/or process contamination during this sampling are as follows

* Equipment rinsates (ERs) are samples of analyte-free deionized water poured into, or over, or pumped through the sampling device, collected in a sample container, and transported to the laboratory for analysis Equipment rinsates are used to assess the effectiveness of equipment decontamination procedures

* Method blanks (MBs) are used in the laboratory to assess and document any possible contamination resulting from the analytical process. A method blank is an analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank shall be carried through the complete sample preparation and analytical procedure.

* Initial and Continuing Calibration blanks (ICBs and CCBs) are analyte-free matrix which are analyzed to verify the analysis system is free of contamination. ICBs and CCBs are analyzed immediately after the initial and continuous calibration is performed.

Field sample concentrations were evaluated to determine if the sample results could have been biased by the presence of any contamination measured in either equipment blanks, method blanks and/or initial/continuing calibration blanks. No sample data were affected by blank contamination.

2 4 **Analytical Precision**

Precision is defined as a measurement of mutual agreement among individual measurements of the same property, usually under "prescribed similar conditions". Analytical precision is calculated as relative percent difference (%RPD) based on the following formula.

$$\%RPD = \left| \frac{(A-B)}{(A+B)/2} \right| \times 100$$

where

%RPD = Relative Percent Difference
A = original result
B = duplicate result

A high RPD between an original sample and its field duplicate may be attributable to the difference in sample matrix or distribution of the contaminant within the sample, rather than the precision of the collection process Also, when "estimated" results are reported, there is a potential for increased variability between the primary and duplicate sample results. This occurs because, at low concentrations, the relative difference in results is magnified by the RPD calculation even though the results are comparable in absolute terms. There is also increased uncertainty in the results as the lower limit of detection is approached due to decreasing analytical accuracy. The RPD calculation cannot be performed in cases where non-detected results are reported with corresponding samples that contain detectable concentrations.

Overall sampling and analysis precision will be assessed using field duplicate (FD) samples Laboratory precision is assessed by laboratory control sample/laboratory control sample duplicate (LCS/LCSD) and matrix spike/matrix spike duplicate (MS/MSD) recoveries. Results indicate that an acceptable analytical precision was achieved. Table 2 4-1 lists precision acceptance criteria for LCS/LCSD and MS/MSD and field duplicate comparisons

Table 2.4-1 Precision Acceptance Criteria.

Field/Laboratory QC Type	Matrix	
	Aqueous	Soil
Field Duplicate (Both Organic & Inorganic)	RPD < 30%	RPD < 50%
Metals LCS/LCSD and MS/MSD	RPD < 20%	RPD < 20%

Table 2.4-2 Summary of Field Duplicate, LCS/LCSD & MS/MSD RPD Criteria Exceedances

Sample Delivery Group	Sample Number	Contaminant (RPD %)	Assigned Validation Qualifier
L0107387	BM0092 MS/MSD	Lead (51 3%)	Lead results for samples BM0092 through BM0096 were "J" qualified due to MS/MSD RPD exceeding QC criteria
L0109128	BM0132A MS/MSD	Lead (21 8%)	Lead results for samples BM0132A, BM0133 through BM0148 were "J" qualified due MS/MSD RPD exceeding QC criteria

2 5 **Analytical Accuracy Assessment**

Accuracy is a measure of the degree of agreement of a result against an accepted reference or true value. Accuracy is expressed as a percent recovery (%R) calculated by the ratio of the measurement and accepted true value as shown in the following equation

$$\%R = (|X_s - X_u|/K) \times 100\%$$

where.

X_s = measured value of the spiked sample
X_u = measured value of the unspiked sample
K = known amount of the spike in the sample

MS/MSD & LCS/LCSD, are used to measure analytical accuracy as described in SW846 SW6010B/SW7000 Series methodology Reported results indicate that an acceptable level of analytical accuracy was achieved. MS/MSD and LCS/LCSD spike recoveries which exceed QC criteria are summarized in Table 2.5-1.

Table 2.5-1 Summary of MS/MSD and LCS/LCSD Spike Recovery Criteria Exceedances

Sample Delivery Group	Sample Number	Contaminant	Action
L0107312	BM0047 MS/MSD BM0078 MS/MSD BM0081 MS/MSD	Lead (HB) Lead (LB) Lead (LB)	Lead results for samples BM0065 through BM0085 were "J" qualified due to MS/MSD spike recoveries exceeding QC criteria
L0107387	BM0092 MS/MSD	Lead (HB)	Lead results for samples BM0092 through BM0096 were "J" qualified due to MS/MSD spike recoveries exceeding QC criteria
L0107478	BM0109 MS/MSD	Lead (LB)	Lead results for samples BM0098 through BM0115 were "J" qualified due to MS/MSD spike recoveries exceeding QC criteria
L0109128	BM0132A MS/MSD	Lead (LB)	Lead results for samples BM0132A, BM0133 through BM0148 were "J" qualified due MS/MSD spike recoveries exceeding QC criteria

LB - low bias
HB - high bias.

2 6 **Data Representativeness**

Representativeness is a qualitative parameter that expresses the degree to which sample data actually represents the matrix conditions. Sample locations selected for this investigation outline the level of lead contamination which exceeds base background. Sample locations were also chosen to verify the level of lead contamination is below background

Standardized requirements and procedures for sample collection and handling were employed to maximize sample representativeness

2 7 **Data Comparability**

Comparability is a qualitative parameter expressing the confidence with which one data set can be compared with another By employing well-recognized techniques and accepted standardized methods for sampling and analysis, data comparability was achieved during this sampling event.

2 8 **Data Completeness**

Completeness is calculated for the aggregation of data for each analyte measured during the *Aerospace Museum Site Excavation Activities*. Formula for calculating completeness is listed below:

% Completeness = (number of valid (i e., non-"R" flagged) results/number of possible results) x100

Aerospace Museum Site Excavation Activities requirement for completeness is 90% for soil samples and 95% for aqueous samples.

$\%\ \text{Completeness}_{(\text{Aqueous})} = (13 / 13) \times 100 = 100\%$
$\%\ \text{Completeness}_{(\text{Soil})} = (104 / 104) \times 100 = 100\%$

2 9 **Sensitivity**

Sensitivity is defined as the ability of laboratory's established method detection limits (MDL)/method reporting limits (MRL or RL) to meet project-specific DQOs or the Medium-Specific Concentration (MSC)

MDL is the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero. MDLs are determined from an analysis of a sample in a given matrix containing the target analyte of interest. The MRL is a threshold value based upon the sensitivity capability of method and instrument. MRLs are normally set at a minimum two times the MDL. MRLs are adjusted based on the sample matrix, moisture (solids only), and any necessary sample dilutions. The laboratory can not reliably quantitate values reported above the MDL but below the MRL. Therefore, these analyte values must be flagged as estimated quantities (F-flagged). Table 2 9-1 summarizes Kemron Environmental Services's MDL/MRL, Carswell AFB background values and MSCs for lead in soil and groundwater.

Table 2.9-1 Sensitivity Comparisons for Lead in Soil and Groundwater by SW6010B.

Analyte	Method Detection Limit (MDL)	Method Reporting Limit (MRL)	Background		Medium-Specific Concentration	
Lead	0 33 mg/kg	1 0 mg/kg	30 97 mg/kg Surface Soil	12 66 mg/kg Deep Soil	1 5 mg/kg Surface Soil	1 5 mg/kg Deep Soil
Lead	0 0012 mg/l	0 005 mg/l	0 0016 mg/l Groundwater		0 015 mg/l Groundwater	

3.0 **Data Useability**

Data Quality Indicators (DQIs) provide an internal guide for control and review to verify that data are scientifically sound, defensible and of known and acceptable quality. Factors such as precision, accuracy, representativeness, comparability, completeness and sensitivity were evaluated to determine if the project's DQOs were met A review of the data revealed the majority of QA/QC indicators were within acceptable control limits

Based on the results of data validation and QA review, IT has concluded representative samples were collected and analyzed and the results are indicative of the media analyzed The data are considered representative of site conditions and are usable for their intended purpose

4.0 **Attachments**

Attachment A - Analytical Summary Tables

Attachment B - Data Validation Summary Reports

Attachment C - Summary of Analytical Results

Attachment A - Analytical Summary Tables

NAS Fort Worth JRB
Aerospace Museum Site
S55C Excavation Sampling Summary
Summer 2001

Aerospace Museum Additional Sampling - Excavation					
Sample Location	Sample Name	Sample Number	Laboratory ID	Date Sampled	Analytical Suite
S55C	S55C-SO-BM0042-REG	BM0042	L0105553-01 (Total) L0105553-02 (SPLP)	23-May-01	Lead by SW6010B & SPLP Lead by SW1312/SW6010B
	S55C-SO-BM0043-REG	BM0043	L0105553-03 (Total) L0105553-04 (SPLP)	23-May-01	Lead by SW6010B & SPLP Lead by SW1312/SW6010B
	S55C-SO-BM0044-REG	BM0044	L0105553-05 (Total) L0105553-06 (SPLP)	23-May-01	Lead by SW6010B & SPLP Lead by SW1312/SW6010B
	S55C-SO-BM0045-REG	BM0045	L0105553-07 (Total) L0105553-08 (SPLP)	23-May-01	Lead by SW6010B & SPLP Lead by SW1312/SW6010B
	S55C-SO-BM0046-REG	BM0046	L0105553-09 (Total) L0105553-10 (SPLP)	23-May-01	Lead by SW6010B & SPLP Lead by SW1312/SW6010B

NAS Fort Worth JRB
Aerospace Museum Site
S55C Excavation Sampling Summary
Summer 2001

Aerospace Museum Additional Sampling - Excavation

Sample Location	Sample Name	Sample Number	Laboratory ID	Date Sampled	Analytical Suite
S55C-N1	S55C-N1-SS-BM0047-REG	BM0047	L0107312-01	18-Jul-01	Lead by SW6010B
	S55C-N1-SS-BM0047MS-MS	*BM0047MS*	*L0107312-02*	*18-Jul-01*	*Lead by SW6010B*
	S55C-N1-SS-BM0047MSD-MSD	*BM0047MSD*	*L0107312-03*	*18-Jul-01*	*Lead by SW6010B*
	S55C-N1-SO-BM0048-REG	BM0048	L0107312-04	18-Jul-01	Lead by SW6010B
	S55C-N1-SO-BM0049-REG	BM0049	L0107312-05	18-Jul-01	Lead by SW6010B
	S55C-N1-SO-BM0050-FD	*BM0050*	*L0107312-06*	*18-Jul-01*	*Lead by SW6010B*
S55C-N2	S55C-N2-SS-BM0051-REG	BM0051	L0107312-07	18-Jul-01	Lead by SW6010B
	S55C-N2-SO-BM0052-REG	BM0052	L0107312-08	18-Jul-01	Lead by SW6010B
	S55C-N2-SO-BM0053-REG	BM0053	L0107312-09	18-Jul-01	Lead by SW6010B
S55C-N3	S55C-N3-SS-BM0054-REG	BM0054	L0107312-10	18-Jul-01	Lead by SW6010B
	S55C-N3-SO-BM0055-REG	BM0055	L0107312-11	18-Jul-01	Lead by SW6010B
	S55C-N3-SO-BM0056-REG	BM0056	L0107312-12	18-Jul-01	Lead by SW6010B
S55C-E1	S55C-E1-SS-BM0057-REG	BM0057	L0107312-13	18-Jul-01	Lead by SW6010B
	S55C-E1-SO-BM0058-REG	BM0058	L0107312-14	18-Jul-01	Lead by SW6010B
	S55C-E1-SO-BM0059-REG	BM0059	L0107312-15	18-Jul-01	Lead by SW6010B
	S55C-E1-SO-BM0060-FD	*BM0060*	*L0107312-16*	*18-Jul-01*	*Lead by SW6010B*
S55C-E2	S55C-E2-SS-BM0061-REG	BM0061	L0107312-17	18-Jul-01	Lead by SW6010B
	S55C-E2-SO-BM0062-REG	BM0062	L0107312-18	18-Jul-01	Lead by SW6010B
	S55C-E2-SO-BM0063-REG	BM0063	L0107312-19	18-Jul-01	Lead by SW6010B
S55C-E3	S55C-E3-SS-BM0064-REG	BM0064	L0107312-20	18-Jul-01	Lead by SW6010B
	S55C-E3-SO-BM0065-REG	BM0065	L0107312-21	18-Jul-01	Lead by SW6010B
	S55C-E3-SO-BM0066-REG	BM0066	L0107312-22	18-Jul-01	Lead by SW6010B
S55C-S1	S55C-S1-SS-BM0067-REG	BM0067	L0107312-23	18-Jul-01	Lead by SW6010B
	S55C-S1-SO-BM0068-REG	BM0068	L0107312-24	18-Jul-01	Lead by SW6010B
	S55C-S1-SO-BM0069-REG	BM0069	L0107312-25	18-Jul-01	Lead by SW6010B
S55C-S2	S55C-S2-SS-BM0070-REG	BM0070	L0107312-26	18-Jul-01	Lead by SW6010B
	S55C-S2-SO-BM0071-REG	BM0071	L0107312-27	18-Jul-01	Lead by SW6010B
	S55C-S2-SO-BM0072-FD	*BM0072*	*L0107312-28*	*18-Jul-01*	*Lead by SW6010B*
	S55C-S2-SO-BM0073-REG	BM0073	L0107312-29	18-Jul-01	Lead by SW6010B
S55C-S3	S55C-S3-SS-BM0074-REG	BM0074	L0107312-30	18-Jul-01	Lead by SW6010B
	S55C-S3-SO-BM0075-REG	BM0075	L0107312-31	18-Jul-01	Lead by SW6010B
	S55C-S3-SO-BM0076-REG	BM0076	L0107312-32	18-Jul-01	Lead by SW6010B
S55C-W1	S55C-W1-SS-BM0077-REG	BM0077	L0107312-33	18-Jul-01	Lead by SW6010B
	S55C-W1-SO-BM0078-REG	BM0078	L0107312-34	18-Jul-01	Lead by SW6010B
	S55C-W1-SO-BM0078MS-MS	*BM0078MS*	*L0107312-35*	*18-Jul-01*	*Lead by SW6010B*
	S55C-W1-SO-BM0078MSD-MSD	*BM0078MSD*	*L0107312-36*	*18-Jul-01*	*Lead by SW6010B*
	S55C-W1-SO-BM0079-REG	BM0079	L0107312-37	18-Jul-01	Lead by SW6010B
S55C-W2	S55C-W2-SS-BM0080-REG	BM0080	L0107312-38	18-Jul-01	Lead by SW6010B
	S55C-W2-SO-BM0081-REG	BM0081	L0107312-39	18-Jul-01	Lead by SW6010B
	S55C-W2-SO-BM0082-FD	*BM0082*	*L0107312-40*	*18-Jul-01*	*Lead by SW6010B*
	S55C-W2-SO-BM0083-REG	BM0083	L0107312-41	18-Jul-01	Lead by SW6010B
S55C-C1	S55C-C1-SO-BM0084-REG	BM0084	L0107312-42	18-Jul-01	Lead by SW6010B
	S55C-C1-SO-BM0085-REG	BM0085	L0107312-43	18-Jul-01	Lead by SW6010B
AMS-FLDQC	AMS-FLDQC-BW-BM8002-ER	BM8002	L0107312-44	18-Jul-01	Lead by SW6010B

NAS Fort Worth JRB
Aerospace Museum Site
S55C Excavation Sampling Summary
Summer 2001

Aerospace Museum Additional Sampling - Excavation					
Sample Location	Sample Name	Sample Number	Laboratory ID	Date Sampled	Analytical Suite
S55C-N4	S55C-N4-SS-BM0092-REG	BM0092	L0107387-01	23-Jul-01	Lead by SW6010B
S55C-N5	S55C-N5-SS-BM0093-REG	BM0093	L0107387-02	23-Jul-01	Lead by SW6010B
S55C-N6	S55C-N6-SS-BM0094-REG	BM0094	L0107387-03	23-Jul-01	Lead by SW6010B
S55C-NE1	S55C-NE1-SS-BM0095-REG	BM0095	L0107387-04	23-Jul-01	Lead by SW6010B
S55C-NW1	S55C-NW1-SS-BM0096-REG	BM0096	L0107387-05	23-Jul-01	Lead by SW6010B
AMS-FLDQC	AMS-FLDQC-BW-BM8003-ER	BM8003	L0107387-06	23-Jul-01	Lead by SW6010B

NAS Fort Worth JRB
Aerospace Museum Site
S55C Excavation Sampling Summary
Summer 2001

Aerospace Museum Additional Sampling - Excavation					
Sample Location	Sample Name	Sample Number	Laboratory ID	Date Sampled	Analytical Suite
S55C-N7	S55C-N7-SS-BM0107-REG	BM0107	L0107478-19 (Total) L0108204-08 (SPLP)	26-Jul-01	Lead by SW6010B & SPLP Lead by SW1312/SW6010B
S55C-N8	S55C-N8-SS-BM0108-REG	BM0108	L0107478-20	26-Jul-01	Lead by SW6010B
S55C-N9	S55C-N9-SS-BM0109-REG	BM0109	L0107478-21	26-Jul-01	Lead by SW6010B
S55C-N10	S55C-N10-SS-BM0110-REG	BM0110	L0107478-07	26-Jul-01	Lead by SW6010B
S55C-N11	S55C-N11-SS-BM0111-REG	BM0111	L0107478-08	26-Jul-01	Lead by SW6010B
S55C-NE2	S55C-NE2-SS-BM0112-REG	BM0112	L0107478-09	26-Jul-01	Lead by SW6010B
S55C-NE3	S55C-NE3-SS-BM0114-REG	BM0114	L0107478-10	26-Jul-01	Lead by SW6010B
	S55C-NE3-SS-BM0114FD-FD	*BM0114FD*	*L0107478-11*	*26-Jul-01*	*Lead by SW6010B*
S55C-NW2	S55C-NW2-SS-BM0113-REG	BM0113	L0107478-12	26-Jul-01	Lead by SW6010B
S55C-NW3	S55C-NW3-SS-BM0115-REG	BM0115	L0107478-13	26-Jul-01	Lead by SW6010B
S55C-V1	S55C-V1-SS-BM0097-REG	BM0097	L0107478-14 (Total) L0108204-06 (SPLP)	26-Jul-01	Lead by SW6010B & SPLP Lead by SW1312/SW6010B
S55C-V2	S55C-V2-SS-BM0098-REG	BM0098	L0107478-01 (Total) L0108204-01 (SPLP)	26-Jul-01	Lead by SW6010B & SPLP Lead by SW1312/SW6010B
	S55C-V2-SS-BM0098FD-FD	*BM0098FD*	*L0107478-02 (Total)* *L0108204-02 (SPLP)*	*26-Jul-01*	*Lead by SW6010B & SPLP Lead by SW1312/SW6010B*
S55C-V3	S55C-V3-SS-BM0104-REG	BM0104	L0107478-15 (Total) L0108204-07 (SPLP)	26-Jul-01	Lead by SW6010B & SPLP Lead by SW1312/SW6010B
	S55C-V3-SS-BM0104MS-MS	*BM0104MS*	*L0107478-16*	*26-Jul-01*	*Lead by SW6010B*
	S55C-V3-SS-BM0104MSD-MSD	*BM0104MSD*	*L0107478-17*	*26-Jul-01*	*Lead by SW6010B*
S55C-V5	S55C-V5-SS-BM0099-REG	BM0099	L0107478-03 (Total) L0108204-03 (SPLP)	26-Jul-01	Lead by SW6010B & SPLP Lead by SW1312/SW6010B
S55C-V6	S55C-V6-SS-BM0103-REG	BM0103	L0107478-06 (Total) L0108204-05 (SPLP)	26-Jul-01	Lead by SW6010B & SPLP Lead by SW1312/SW6010B
S55C-V7	S55C-V7-SS-BM0100-REG	BM0100	L0107478-04 (Total) L0108204-04 (SPLP)	26-Jul-01	Lead by SW6010B & SPLP Lead by SW1312/SW6010B
S55C-V8	S55C-V8-SO-BM0101-REG	BM0101	L0107478-18	26-Jul-01	Lead by SW6010B
S55C-V9	S55C-V9-SO-BM0102-REG	BM0102	L0107478-05	26-Jul-01	Lead by SW6010B

NAS Fort Worth JRB
Aerospace Museum Site
S55C Excavation Sampling Summary
Summer 2001

Aerospace Museum Additional Sampling - Excavation					
Sample Location	Sample Name	Sample Number	Laboratory ID	Date Sampled	Analytical Suite
S55C-VE1	S55C-VE1-SO-BM0119-REG	BM0119	L0108550-04	20-Aug-01	Lead by SW6010B
	S55C-VE1-SO-BM0119MS-MS	*BM0119MS*	*L0108550-05*	20-Aug-01	Lead by SW6010B
	S55C-VE1-SO-BM0119MSD-MSD	*BM0119MSD*	*L0108550-06*	20-Aug-01	Lead by SW6010B
S55C-VE2	S55C-VE2-SO-BM0120-REG	BM0120	L0108550-07	20-Aug-01	Lead by SW6010B
S55C-VN1	S55C-VN1-SO-BM0116-REG	BM0116	L0108550-01	21-Aug-01	Lead by SW6010B
S55C-VN2	S55C-VN2-SO-BM0117-REG	BM0117	L0108550-02	21-Aug-01	Lead by SW6010B
	S55C-VN2-SO-BM0118-FD	*BM0118*	L0108550-03	21-Aug-01	Lead by SW6010B
S55C-VE3	S55C-VE3-SO-BM0121-REG	BM0121	L0108550-08	21-Aug-01	Lead by SW6010B
S55C-VE4	S55C-VE4-SO-BM0122-REG	BM0122	L0108550-09	21-Aug-01	Lead by SW6010B
S55C-VS1	S55C-VS1-SO-BM0123-REG	BM0123	L0108550-10	21-Aug-01	Lead by SW6010B
S55C-VS2	S55C-VS2-SO-BM0124-REG	BM0124	L0108550-11	21-Aug-01	Lead by SW6010B
S55C-VF1	S55C-VF1-SO-BM0131-REG	BM0131	L0108550-12	21-Aug-01	Lead by SW6010B
S55C-VW1	S55C-VW1-SO-BM0125-REG	BM0125	L0108550-13	23-Aug-01	Lead by SW6010B
S55C-VW2	S55C-VW2-SO-BM0126-REG	BM0126	L0108550-14	23-Aug-01	Lead by SW6010B
S55C-VW3	S55C-VW3-SO-BM0127-REG	BM0127	L0108550-15	23-Aug-01	Lead by SW6010B
	S55C-VW3-SO-BM0128-FD	*BM0128*	*L0108550-16*	23-Aug-01	Lead by SW6010B
S55C-VW4	S55C-VW4-SO-BM0129-REG	BM0129	L0108550-17	23-Aug-01	Lead by SW6010B
S55C-VW5	S55C-VW5-SO-BM0132-REG	BM0132	L0108550-18	23-Aug-01	Lead by SW6010B

NAS Fort Worth JRB
Aerospace Museum Site
S55C Excavation Sampling Summary
Summer 2001

Aerospace Museum Additional Sampling - Excavation					
Sample Location	Sample Name	Sample Number	Laboratory ID	Date Sampled	Analytical Suite
S55C-FL1	S55C-FL1-SO-BM0132A-REG	BM0132A	L0109128-01	06-Sep-01	Lead by SW6010B
S55C-FL0	S55C-FL0-SO-BM0133-REG	BM0133	L0109128-02	06-Sep-01	Lead by SW6010B
S55C-W1-0	S55C-W1-0-SO-BM0134-REG	BM0134	L0109128-03	06-Sep-01	Lead by SW6010B
S55C-W1-1	S55C-W1-1-SO-BM0135-REG	BM0135	L0109128-04	06-Sep-01	Lead by SW6010B
S55C-W1-2	S55C-W1-2-SO-BM0136-REG	BM0136	L0109128-05	06-Sep-01	Lead by SW6010B
S55C-W1-3	S55C-W1-3-SO-BM0137-REG	BM0137	L0109128-06	06-Sep-01	Lead by SW6010B
S55C-W1-4	S55C-W1-4-SO-BM0138-REG	BM0138	L0109128-07	06-Sep-01	Lead by SW6010B
S55C-W1-5	S55C-W1-5-SO-BM0139-REG	BM0139	L0109128-08	06-Sep-01	Lead by SW6010B
S55C-W2-0	S55C-W2-0-SO-BM0140-REG	BM0140	L0109128-09	06-Sep-01	Lead by SW6010B
S55C-W2-1	S55C-W2-1-SO-BM0141-REG	BM0141	L0109128-10	06-Sep-01	Lead by SW6010B
S55C-W2-2	S55C-W2-2-SO-BM0142-REG	BM0142	L0109128-11	06-Sep-01	Lead by SW6010B
S55C-W2-3	S55C-W2-3-SO-BM0143-REG	BM0143	L0109128-12	06-Sep-01	Lead by SW6010B
S55C-W2-4	S55C-W2-4-SO-BM0144-REG	BM0144	L0109128-13	06-Sep-01	Lead by SW6010B
S55C-W3-0	S55C-W3-0-SO-BM0145-REG	BM0145	L0109128-14	06-Sep-01	Lead by SW6010B
S55C-W3-1	S55C-W3-1-SO-BM0146-REG	BM0146	L0109128-15	06-Sep-01	Lead by SW6010B
S55C-W3-2	S55C-W3-2-SO-BM0147-REG	BM0147	L0109128-16	06-Sep-01	Lead by SW6010B
S55C-W3-3	S55C-W3-3-SO-BM0148-REG	BM0148	L0109128-17	06-Sep-01	Lead by SW6010B

NAS Fort Worth JRB
Aerospace Museum Site
S55C Excavation Sampling Summary
Summer 2001

Aerospace Museum Additional Sampling - Excavation					
Sample Location	Sample Name	Sample Number	Laboratory ID	Date Sampled	Analytical Suite
341-W1	341-W1-SS-BM0149-REG	BM0149	L0109333-01	20-Sep-01	Lead by SW6010B
341-W2	341-W2-SS-BM0150-REG	BM0150	L0109333-02	20-Sep-01	Lead by SW6010B
341-W3	341-W3-SS-BM0151-REG	BM0151	L0109333-03	20-Sep-01	Lead by SW6010B

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Attachment B - Data Validation Summary Reports

DATA VALIDATION SUMMARY REPORT

PROJECT	Carswell Air Force Base; Aerospace Museum Site, Delivery Order 0039
LABORATORY:	Kemron Environmental Services
WORK ORDER:	L0107312
MATRIX:	Soils
VALIDATION LEVEL:	III
ANALYSES METHODS:	Metals (Lead) by SW846 6010B

1.0 INTRODUCTION

Soil samples were submitted to Kemron Environmental Services for analyses. The validated samples are listed in Table 1-1.

100% of the samples were validated and reviewed in accordance with the "EPA Functional Guidelines", and the associated methods. Validation qualifiers were assigned due to matrix and serial dilution problems. No data were rejected, specific findings are discussed in detail in the following sections.

Table 1-1. Sample Information

Work Order Number	Sample Date	Sample Number	Lab ID	Metals by 6010B	Field QC
L0107312	7/18/01	BM0047	-01	7/19/01	BM8002-ER
		BM0048	-04		
		BM0049	-05		
		BM0050	-06		
		BM0051	-07		
		BM0052	-08		
		BM0053	-09		
		BM0054	-10		
		BM0055	-11		
		BM0056	-12		
		BM0057	-13		
		BM0058	14		
		BM0059	-15		
		BM0060	-16		
		BM0061	-17		
		BM0062	-18		
		BM0063	-19		
		BM0064	-20		
		BM0065	-21		
		BM0066	-22		
		BM0067	-23		
		BM0068	-24		
		BM0069	-25		
		BM0070	-26		
		BM0071	-27		
		BM0072	-28		
		BM0073	-29		
		BM0074	-30		
		BM0075	-31		
		BM0076	-32		
		BM0077	-33		
		BM0078	-34		
		BM0079	-37		
		BM0080	-38		
		BM0081	-39		
		BM0082	-40		
		BM0083	-41		
		BM0084	-42		
		BM0085	-43		

NA = Not Analyzed

2.0 INORGANIC METALS (Total Lead) ANALYSIS by 6010B

2.1 Sampling Documentation

Work Order L0107312: Chain-of-custody (COC) records indicate samples were received in good condition and properly preserved. No qualifiers were assigned.

2.2 Holding Times

Work Order L0107312: Validated samples were analyzed within the specified holding time requirements. No qualifiers were assigned.

2.3 Calibrations

2.3.1 Initial Calibration Verification

Work Order L0107312: Initial Calibration Verifications (ICVs) were performed immediately following instrument standardization and met all QC requirements. No qualifiers were assigned.

2.3.2 Continuing Calibration Verification

Work Order L0107312: Continuing Calibration Verifications (CCVs) were within QC control limits. No qualifiers were assigned.

2.4 Blanks

2.4.1 Method/Preparation Blanks

Work Order L0107312: Associated method blanks (MBs) were free from contamination. No qualifiers were assigned.

2.4.2 Calibration Blanks

Work Order L0107312: Associated Continuing Calibration Blanks (CCBs) detected no contaminants. No qualifiers were assigned.

2.4.3 Equipment Rinse

Work Order L0107312: The associated equipment rinse (BM8002) detected no contaminants. No qualifiers were assigned.

2.5 Matrix Spike (MS) /Matrix Spike Duplicate (MSD)

Work Order L0107312: Three MS/MSD batches were evaluated. Total lead results for samples BM0065 through BM0085 were estimated ("J" qualified) due to low % recoveries.

2.6 Laboratory Control Sample (LCS)

Work Order L0107312: LCS analysis exhibited acceptable results. No qualifiers were assigned.

2.8 Field Duplicates

Work Order L0107312: Four sets of original and field duplicates were evaluated. No qualifiers were assigned.

2.9 Serial Dilution

Work Order L0107312: Serial dilutions for samples BM0047 through BM0064 reported %Difference>10%. All positive results for samples BM0047 through BM0064 were estimated ("J" qualified).

2.10 Compound Quantitation and Project Reporting Limits

Based on a Level III validation, the validated samples were identified and generally quantified appropriately.

2.11 Overall Assessment of the Data

Data for the validated samples are acceptable as qualified.

DATA VALIDATION SUMMARY REPORT

PROJECT:	Carswell Air Force Base; Aerospace Museum Site, Delivery Order 0003
LABORATORY:	Kemron Environmental Services
WORK ORDER:	L0107387, L0107478, L0108550, L0109128, and L0109333
MATRIX:	Soils
VALIDATION LEVEL:	III
ANALYSES METHODS:	Metals (Lead) by SW846 6010B

1.0 INTRODUCTION

Soil samples were submitted to Kemron Environmental Services for analyses. The validated samples are listed in Table 1-1.

100% of the samples were validated and reviewed in accordance with the "EPA Functional Guidelines", and associated methods. Validation qualifiers were assigned due to matrix and serial dilution problems. No data were rejected, specific findings are discussed in detail in the following sections.

Table 1-1. Sample Information

Work Order Number	Sample Date	Sample Number	Lab ID	Metals by 6010B
L0107387	7/23/01	BM0092	-01	7/25/01
		BM0093	-02	
		BM0094	-03	
		BM0095	-04	
		BM0096	-05	
L0107478	7/26/01	BM0098	-01	7/30/01
		BM0098FD	-02	
		BM0099	-03	
		BM0100	-04	
		BM0102	-05	
		BM0103	-06	
		BM0110	-07	
		BM0111	-08	
		BM0112	-09	
		BM0114	-10	
		BM0114FD	-11	
		BM0113	-12	
		BM0115	-13	
		BM0097	-14	
		BM0104	-15	
		BM0101	-18	
		BM0107	-19	
		BM0108	-20	
		BM0109	-21	
L0108550	8/21/01	BM0116	-01	8/27/01
		BM0117	-02	
		BM0118	-03	
	8/20/01	BM0119	-04	
		BM0120	-07	
	8/21/01	BM0121	-08	
		BM0122	-09	
		BM0123	-10	
		BM0124	-11	
		BM0131	-12	
	8/23/01	BM0125	-13	
		BM0126	-14	
		BM0127	-15	
		BM0128	-16	
		BM0129	-17	
		BM0132	-18	

Work Order Number	Sample Date	Sample Number	Lab ID	Metals by 6010B
L0109128	9/6/01	BM0132	-01	9/10/01
		BM0133	-02	
		BM0134	-03	
		BM0135	-04	
		BM0136	-05	
		BM0137	-06	
		BM0138	-07	
		BM0139	-08	
		BM0140	-09	
		BM0141	-10	
		BM0142	-11	
		BM0143	-12	
		BM0144	-13	
		BM0145	-14	
		BM0146	-15	
		BM0147	-16	
		BM0148	-17	
L0109333	9/20/01	BM0149	-01	9/24/01
		BM0150	-02	
		BM0151	-03	

2.0 INORGANIC METALS (Total Lead) ANALYSIS by 6010B

2.1 Sampling Documentation

All Work Orders (L0107387, L0107487, L0108550, L0109128, and L0109333): Chain-of-custody (COC) records indicate that samples were received in good condition and properly preserved. No qualifiers were assigned.

2.2 Holding Times

All Work Orders (L0107387, L0107487, L0108550, L0109128, and L0109333): Validated samples were analyzed within the specified holding time requirements. No qualifiers were assigned.

2.3 Calibrations

2.3.1 Initial Calibration Verification

All Work Orders (L0107387, L0107487, L0108550, L0109128, and L0109333): Initial Calibration Verifications (ICVs) were performed immediately following instrument standardization and met all QC requirements. No qualifiers were assigned.

2.3.2 Continuing Calibration Verification

All Work Orders (L0107387, L0107487, L0108550, L0109128, and L0109333): Continuing Calibration Verifications (CCVs) were within QC control limits. No qualifiers were assigned.

2.4 Blanks

2.4.1 Method/Preparation Blanks

All Work Orders (L0107387, L0107487, L0108550, L0109128, and L0109333): Associated method blanks (MBs) were evaluated for possible cross-contamination. All were non-detect or sample results were >5X the level of contamination reported. No qualifiers were assigned.

2.4.2 Calibration Blanks

All Work Orders (L0107387, L0107487, L0108550, L0109128, and L0109333): Associated Continuing Calibration Blanks (CCBs) detected no contaminants. No qualifiers were assigned.

2.5 Matrix Spike (MS) /Matrix Spike Duplicate (MSD)

Work Order L0107387: MS/MSD were evaluated and all lead results were estimated ("J" qualified) due to high % recoveries.

Work Order L0107478: MS/MSD's were evaluated and lead results for sample BM0109 were estimated ("J" qualified) due to low % recoveries and high RPD.

Work Order L0108550: MS/MSD were evaluated and all QC criteria were met. No qualifiers were assigned.

Work Order L0109128: MS/MSD's were evaluated and lead results for all samples were estimated ("J" qualified) due to low % recoveries and high RPD.

Work Order L0109333: MS/MSD's were evaluated and all QC criteria were met. Post digestion spike was performed on sample BM0149 and reported low % recoveries. All results were estimated ("J" qualified).

2.6 Laboratory Control Sample (LCS)

All Work Orders (L0107387, L0107487, L0108550, L0109128, and L0109333): LCS analysis exhibited acceptable results. No qualifiers were assigned.

2.7 Interference Check Samples

All Work Orders (L0107387, L0107487, L0108550, L0109128, and L0109333): Interference Check Samples (ICS) analyzed were within QC control limits. No qualifiers were assigned.

2.8 Field Duplicates

All Work Orders (L0107387, L0107487, L0108550, L0109128, and L0109333): Field duplicates were evaluated and all QC criteria were met. No qualifiers were assigned.

2.9 Serial Dilution

Work Order L0107387: Serial dilution for sample BM0094 reported %Difference>10%. Results for all samples were estimated ("J" qualified).

Work Order L0107478: Serial dilution for sample BM0099 reported %Difference >10%. Results for associated samples (BM0097, BM0098, BM0098FD, BM0099, BM0100, BM0101, BM0102, BM00103, BM0104, BM0107, BM0108, BM0110, BM0111, BM0112, BM0113, BM00114, BM0114FD, BM0115) were estimated ("J" qualified). 10% Difference criteria was not applicable for the serial dilution performed for sample BM0109 since the sample amount was <50x the Instrument Detection Limit (IDL).

Work Order L0108550: The serial dilution for sample BM0119 had %Difference>10%. Results for all samples were estimated (J qualified).

Work Order L0109128: No serial dilution was associated with this sample delivery group (SDG). Post digestion spike was performed with acceptable results.

Work Order L0109333: Serial dilution was evaluated and all QC criteria were met.

2.10 Compound Quantitation and Project Reporting Limits

Based on a Level III validation, the validated samples were identified and generally quantified appropriately.

2.11 Overall Assessment of the Data

Data for the validated samples are acceptable as qualified.

Attachment C - Summary of Analytical Results

NAS Fort Worth JRB
Aerospace Museum Site (AMS)
Excavation Activities Data Summary
Project No. 774902 Delivery Order 0003

Location	Sample No	Sample Purpose	Sample Date	Sample Type	Start Depth (FT)	End Depth (FT)	Parameter	CAS No	Result	Reporting Limit	Method Detection Limit	Units	Laboratory Qualifier	Validation Qualifier	Detect	Use
S55C	BM0042	REG	23-May-01	SO	0	3	SPLP-Lead	7439-92-1	0 007	0 005	0 0012	mg/L		nv	Y	Y
S55C	BM0042	REG	23-May-01	SO	0	3	Lead	7439-92-1	248	1 1	0 33	mg/kg		nv	Y	Y
S55C	BM0043	REG	23-May-01	SO	0	3	SPLP-Lead	7439-92-1	0 026	0 005	0 0012	mg/L		nv	Y	Y
S55C	BM0043	REG	23-May-01	SO	0	3	Lead	7439-92-1	105	1 1	0 33	mg/kg		nv	Y	Y
S55C	BM0044	REG	23-May-01	SO	0	3	SPLP-Lead	7439-92-1	0 016	0 005	0 0012	mg/L		nv	Y	Y
S55C	BM0044	REG	23-May-01	SO	0	3	Lead	7439-92-1	146	1 2	0 33	mg/kg		nv	Y	Y
S55C	BM0045	REG	23-May-01	SO	0	3	SPLP-Lead	7439-92-1	0 013	0 005	0 0012	mg/L		nv	Y	Y
S55C	BM0045	REG	23-May-01	SO	0	3	Lead	7439-92-1	107	1 2	0 33	mg/kg		nv	Y	Y
S55C	BM0046	REG	23-May-01	SO	3	3 5	SPLP-Lead	7439-92-1	0 047	0 005	0 0012	mg/L		nv	Y	Y
S55C	BM0046	REG	23-May-01	SO	3	3 5	Lead	7439-92-1	76 7	1 2	0 33	mg/kg		nv	Y	Y
S55C-N1	BM0047	REG	18-Jul-01	SS	1 5	2	Lead	7439-92-1	165	1 2	0 33	mg/kg	M	J	Y	Y
S55C-N1	BM0048	REG	18-Jul-01	SO	4 5	5	Lead	7439-92-1	13 5	1 2	0 33	mg/kg		J	Y	Y
S55C-N1	BM0049	REG	18-Jul-01	SO	7 5	8	Lead	7439-92-1	5 83	1 1	0 33	mg/kg		J	Y	Y
S55C-N1	BM0050	FD	18-Jul-01	SO	7 5	8	Lead	7439-92-1	6 71	1 1	0 33	mg/kg		J	Y	Y
S55C-N2	BM0051	REG	18-Jul-01	SS	1 5	2	Lead	7439-92-1	108	1 1	0 33	mg/kg		J	Y	Y
S55C-N2	BM0052	REG	18-Jul-01	SO	4 5	5	Lead	7439-92-1	12 4	1 2	0 33	mg/kg		J	Y	Y
S55C-N2	BM0053	REG	18-Jul-01	SO	7 5	8	Lead	7439-92-1	7 8	1 1	0 33	mg/kg		J	Y	Y
S55C-N3	BM0054	REG	18-Jul-01	SS	1 5	2	Lead	7439-92-1	210	1 1	0 33	mg/kg		J	Y	Y
S55C-N3	BM0055	REG	18-Jul-01	SO	4 5	5	Lead	7439-92-1	11 4	1 1	0 33	mg/kg		J	Y	Y
S55C-N3	BM0056	REG	18-Jul-01	SO	7 5	8	Lead	7439-92-1	6 79	1 1	0 33	mg/kg		J	Y	Y
S55C-E1	BM0057	REG	18-Jul-01	SS	1 5	2	Lead	7439-92-1	65 3	1 1	0 33	mg/kg		J	Y	Y
S55C-E1	BM0058	REG	18-Jul-01	SO	4 5	5	Lead	7439-92-1	12 5	1 2	0 33	mg/kg		J	Y	Y
S55C-E1	BM0059	REG	18-Jul-01	SO	7 5	8	Lead	7439-92-1	9 34	1 1	0 33	mg/kg		J	Y	Y
S55C-E1	BM0060	FD	18-Jul-01	SO	7 5	8	Lead	7439-92-1	10 5	1 1	0 33	mg/kg		J	Y	Y
S55C-E2	BM0061	REG	18-Jul-01	SS	1 5	2	Lead	7439-92-1	59 6	1	0 33	mg/kg		J	Y	Y
S55C-E2	BM0062	REG	18-Jul-01	SO	4 5	5	Lead	7439-92-1	16 1	1 3	0 33	mg/kg		J	Y	Y
S55C-E2	BM0063	REG	18-Jul-01	SO	7 5	8	Lead	7439-92-1	8 59	1 1	0 33	mg/kg		J	Y	Y
S55C-E3	BM0064	REG	18-Jul-01	SS	1 5	2	Lead	7439-92-1	31 7	1 1	0 33	mg/kg		J	Y	Y
S55C-E3	BM0065	REG	18-Jul-01	SO	4 5	5	Lead	7439-92-1	11 4	1 1	0 33	mg/kg		J	Y	Y
S55C-E3	BM0066	REG	18-Jul-01	SO	7 5	8	Lead	7439-92-1	9 59	1 2	0 33	mg/kg		J	Y	Y
S55C-S1	BM0067	REG	18-Jul-01	SS	1 5	2	Lead	7439-92-1	217	1 1	0 33	mg/kg		J	Y	Y
S55C-S1	BM0068	REG	18-Jul-01	SO	4 5	5	Lead	7439-92-1	8 96	1 1	0 33	mg/kg		J	Y	Y
S55C-S1	BM0069	REG	18-Jul-01	SO	7 5	8	Lead	7439-92-1	8 27	1 2	0 33	mg/kg		J	Y	Y
S55C-S2	BM0070	REG	18-Jul-01	SS	1 5	2	Lead	7439-92-1	17	1 1	0 33	mg/kg		J	Y	Y
S55C-S2	BM0071	REG	18-Jul-01	SO	4 5	5	Lead	7439-92-1	9 98	1 1	0 33	mg/kg		J	Y	Y
S55C-S2	BM0072	FD	18-Jul-01	SO	4 5	5	Lead	7439-92-1	7 67	1 2	0 33	mg/kg		J	Y	Y
S55C-S2	BM0073	REG	18-Jul-01	SO	7 5	8	Lead	7439-92-1	7 54	1 1	0 33	mg/kg		J	Y	Y
S55C-S3	BM0074	REG	18-Jul-01	SS	1 5	2	Lead	7439-92-1	17 6	1 1	0 33	mg/kg		J	Y	Y
S55C-S3	BM0075	REG	18-Jul-01	SO	4 5	5	Lead	7439-92-1	8 32	1 1	0 33	mg/kg		J	Y	Y
S55C-S3	BM0076	REG	18-Jul-01	SO	7 5	8	Lead	7439-92-1	7 2	1 1	0 33	mg/kg		J	Y	Y
S55C-W1	BM0077	REG	18-Jul-01	SS	1 5	2	Lead	7439-92-1	5 16	1 1	0 33	mg/kg		J	Y	Y
S55C-W1	BM0078	REG	18-Jul-01	SO	4 5	5	Lead	7439-92-1	11 4	1 2	0 33	mg/kg	M	J	Y	Y
S55C-W1	BM0079	REG	18-Jul-01	SO	7 5	8	Lead	7439-92-1	7 37	1 1	0 33	mg/kg		J	Y	Y
S55C-W2	BM0080	REG	18-Jul-01	SS	1 5	2	Lead	7439-92-1	11 4	1	0 33	mg/kg		J	Y	Y
S55C-W2	BM0081	REG	18-Jul-01	SO	4 5	5	Lead	7439-92-1	12	1 2	0 33	mg/kg		J	Y	Y
S55C-W2	BM0082	FD	18-Jul-01	SO	4 5	5	Lead	7439-92-1	12 9	1 2	0 33	mg/kg		J	Y	Y
S55C-W2	BM0083	REG	18-Jul-01	SO	7 5	8	Lead	7439-92-1	9 15	1 1	0 33	mg/kg		J	Y	Y
S55C-C1	BM0084	REG	18-Jul-01	SO	5	5 5	Lead	7439-92-1	10	1 1	0 33	mg/kg		J	Y	Y

NAS Fort Worth JRB
Aerospace Museum Site (AMS)
Excavation Activities Data Summary
Project No. 774902 Delivery Order 0003

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Location	Sample No.	Sample Purpose	Sample Date	Sample Type	Start Depth (FT)	End Depth (FT)	Parameter	CAS No	Result	Reporting Limit	Method Detection Limit	Units	Laboratory Qualifier	Validation Qualifier	Detect	Use
S55C-C1	BM0085	REG	18-Jul-01	SO	7 5	8	Lead	7439-92-1	8 72	1 1	0 33	mg/kg		J	Y	Y
S55C-N4	BM0092	REG	23-Jul-01	SS	1 5	2	Lead	7439-92-1	122	1 1	0 33	mg/kg		J	Y	Y
S55C-N5	BM0093	REG	23-Jul-01	SS	1 5	2	Lead	7439-92-1	242	1	0 33	mg/kg		J	Y	Y
S55C-N6	BM0094	REG	23-Jul-01	SS	1 5	2	Lead	7439-92-1	189	1 1	0 33	mg/kg		J	Y	Y
S55C-NE1	BM0095	REG	23-Jul-01	SS	1 5	2	Lead	7439-92-1	16 1	1 1	0 33	mg/kg		J	Y	Y
S55C-NW1	BM0096	REG	23-Jul-01	SS	1 5	2	Lead	7439-92-1	113	1 1	0 33	mg/kg		J	Y	Y
S55C-V1	BM0097	REG	26-Jul-01	SS	0	2	SPLP-Lead	7439-92-1	0 014	0 005	0 0012	mg/L		nv	Y	Y
S55C-V1	BM0097	REG	26-Jul-01	SS	0	2	Lead	7439-92-1	128	1 1	0 33	mg/kg		J	Y	Y
S55C-V2	BM0098	REG	26-Jul-01	SS	0	2	SPLP-Lead	7439-92-1	0 093	0 005	0 0012	mg/L		nv	Y	Y
S55C-V2	BM0098	REG	26-Jul-01	SS	0	2	Lead	7439-92-1	80 5	1	0 33	mg/kg		J	Y	Y
S55C-V2	BM0098FD	FD	26-Jul-01	SS	0	2	SPLP-Lead	7439-92-1	0 046	0 005	0 0012	mg/L		nv	Y	Y
S55C-V2	BM0098FD	FD	26-Jul-01	SS	0	2	Lead	7439-92-1	105	1 1	0 33	mg/kg		J	Y	Y
S55C-V5	BM0099	REG	26-Jul-01	SS	0	2	SPLP-Lead	7439-92-1	0 009	0 005	0 0012	mg/L		nv	Y	Y
S55C-V5	BM0099	REG	26-Jul-01	SS	0	2	Lead	7439-92-1	203	5 4	0 33	mg/kg		J	Y	Y
S55C-V7	BM0100	REG	26-Jul-01	SS	0	2	SPLP-Lead	7439-92-1	0 074	0 005	0 0012	mg/L		nv	Y	Y
S55C-V7	BM0100	REG	26-Jul-01	SS	0	2	Lead	7439-92-1	82 7	1 1	0 33	mg/kg		J	Y	Y
S55C-V8	BM0101	REG	26-Jul-01	SO	3	3	Lead	7439-92-1	14 9	1 2	0 33	mg/kg		J	Y	Y
S55C-V9	BM0102	REG	26-Jul-01	SO	3	3	Lead	7439-92-1	9 65	1 1	0 33	mg/kg		J	Y	Y
S55C-V6	BM0103	REG	26-Jul-01	SS	0	2	SPLP-Lead	7439-92-1	0 036	0 005	0 0012	mg/L		nv	Y	Y
S55C-V6	BM0103	REG	26-Jul-01	SS	0	2	Lead	7439-92-1	381	1 1	0 33	mg/kg		J	Y	Y
S55C-V3	BM0104	REG	26-Jul-01	SS	0	2	SPLP-Lead	7439-92-1	0 097	0 005	0 0012	mg/L		nv	Y	Y
S55C-V3	BM0104	REG	26-Jul-01	SS	0	2	Lead	7439-92-1	58 9	1 1	0 33	mg/kg		J	Y	Y
S55C-N7	BM0107	REG	26-Jul-01	SS	0	2	SPLP-Lead	7439-92-1	0 073	0 005	0 0012	mg/L		nv	Y	Y
S55C-N7	BM0107	REG	26-Jul-01	SS	0	2	Lead	7439-92-1	94 3	1 1	0 33	mg/kg		J	Y	Y
S55C-N8	BM0108	REG	26-Jul-01	SS	0	2	Lead	7439-92-1	12 3	1 1	0 33	mg/kg		J	Y	Y
S55C-N9	BM0109	REG	26-Jul-01	SS	0	2	Lead	7439-92-1	18 1	1 1	0 33	mg/kg		J	Y	Y
S55C-N10	BM0110	REG	26-Jul-01	SS	0	2	Lead	7439-92-1	13 5	1 1	0 33	mg/kg		J	Y	Y
S55C-N11	BM0111	REG	26-Jul-01	SS	0	2	Lead	7439-92-1	21	1 2	0 33	mg/kg		J	Y	Y
S55C-NE2	BM0112	REG	26-Jul-01	SS	0	2	Lead	7439-92-1	13 2	1 1	0 33	mg/kg		J	Y	Y
S55C-NW2	BM0113	REG	26-Jul-01	SS	0	2	Lead	7439-92-1	14 3	1 1	0 33	mg/kg		J	Y	Y
S55C-NE3	BM0114	REG	26-Jul-01	SS	0	2	Lead	7439-92-1	26 3	1 1	0 33	mg/kg		J	Y	Y
S55C-NE3	BM0114FD	FD	26-Jul-01	SS	0	2	Lead	7439-92-1	22 7	1 1	0 33	mg/kg		J	Y	Y
S55C-NW3	BM0115	REG	26-Jul-01	SS	0	2	Lead	7439-92-1	15 2	1 2	0 33	mg/kg		J	Y	Y
S55C-VN1	BM0116	REG	21-Aug-01	SO	0	4	Lead	7439-92-1	23 6	1 1	0 36	mg/kg		J	Y	Y
S55C-VN2	BM0117	REG	21-Aug-01	SO	0	4	Lead	7439-92-1	14 9	1 1	0 36	mg/kg		J	Y	Y
S55C-VN2	BM0118	FD	21-Aug-01	SO	0	4	Lead	7439-92-1	11 5	1 1	0 36	mg/kg		J	Y	Y
S55C-VE1	BM0119	REG	20-Aug-01	SO	0	3	Lead	7439-92-1	24 8	1 1	0 36	mg/kg		J	Y	Y
S55C-VE2	BM0120	REG	20-Aug-01	SO	0	3	Lead	7439-92-1	12 9	1 1	0 35	mg/kg		J	Y	Y
S55C-VE3	BM0121	REG	21-Aug-01	SO	0	4	Lead	7439-92-1	10 8	1 1	0 36	mg/kg		J	Y	Y
S55C-VE4	BM0122	REG	21-Aug-01	SO	0	4	Lead	7439-92-1	11 7	1 1	0 36	mg/kg		J	Y	Y
S55C-VS1	BM0123	REG	21-Aug-01	SO	0	3	Lead	7439-92-1	28 4	1 1	0 36	mg/kg		J	Y	Y
S55C-VS2	BM0124	REG	21-Aug-01	SO	0	3	Lead	7439-92-1	12 8	1 1	0 36	mg/kg		J	Y	Y
S55C-VW1	BM0125	REG	23-Aug-01	SO	0	3	Lead	7439-92-1	143	1 1	0 38	mg/kg		J	Y	Y
S55C-VW2	BM0126	REG	23-Aug-01	SO	0	3	Lead	7439-92-1	130	1 1	0 38	mg/kg		J	Y	Y
S55C-VW3	BM0127	REG	23-Aug-01	SO	0	3	Lead	7439-92-1	214	1 1	0 36	mg/kg		J	Y	Y
S55C-VW3	BM0128	FD	23-Aug-01	SO	0	3	Lead	7439-92-1	275	1 1	0 36	mg/kg		J	Y	Y
S55C-VW4	BM0129	REG	23-Aug-01	SO	0	3	Lead	7439-92-1	42 2	1 2	0 38	mg/kg		J	Y	Y
S55C-VF1	BM0131	REG	21-Aug-01	SO	4	4.5	Lead	7439-92-1	9 2	1 1	0 35	mg/kg		J	Y	Y

NAS Fort Worth JRB
Aerospace Museum Site (AMS)
Excavation Activities Data Summary
Project No. 774902 Delivery Order 0003

Location	Sample No.	Sample Purpose	Sample Date	Sample Type	Start Depth (FT)	End Depth (FT)	Parameter	CAS No.	Result	Reporting Limit	Method Detection Limit	Units	Laboratory Qualifier	Validation Qualifier	Detect	Use
S55C-VW5	BM0132	REG	23-Aug-01	SO	0	3	Lead	7439-92-1	114	1 2	0 38	mg/kg		J	Y	Y
S55C-VW5	BM0132	REG	23-Aug-01	SO	0	3	Lead	7439-92-1	56 6	1 2	0 38	mg/kg		J	Y	Y
S55C-FL0	BM0133	REG	6-Sep-01	SO	1	1 5	Lead	7439-92-1	106	1 4	0 47	mg/kg		J	Y	Y
S55C-W1-0	BM0134	REG	6-Sep-01	SO	1	1 5	Lead	7439-92-1	165	1 4	0 45	mg/kg		J	Y	Y
S55C-W1-1	BM0135	REG	6-Sep-01	SO	1	1 5	Lead	7439-92-1	98 3	1 2	0 4	mg/kg		J	Y	Y
S55C-W1-2	BM0136	REG	6-Sep-01	SO	1	1 5	Lead	7439-92-1	232	1 1	0 38	mg/kg		J	Y	Y
S55C-W1-3	BM0137	REG	6-Sep-01	SO	1	1 5	Lead	7439-92-1	93 3	1 3	0 42	mg/kg		J	Y	Y
S55C-W1-4	BM0138	REG	6-Sep-01	SO	1	1 5	Lead	7439-92-1	68 9	1 4	0 45	mg/kg		J	Y	Y
S55C-W1-5	BM0139	REG	6-Sep-01	SO	1	1 5	Lead	7439-92-1	3 3	1 3	0 44	mg/kg		J	Y	Y
S55C-W2-0	BM0140	REG	6-Sep-01	SO	1	1 5	Lead	7439-92-1	44 2	1 4	0 45	mg/kg		J	Y	Y
S55C-W2-1	BM0141	REG	6-Sep-01	SO	1	1 5	Lead	7439-92-1	34 5	1 1	0 37	mg/kg		J	Y	Y
S55C-W2-2	BM0142	REG	6-Sep-01	SO	1	1 2	Lead	7439-92-1	85 3	1 2	0 39	mg/kg		J	Y	Y
S55C-W2-3	BM0143	REG	6-Sep-01	SO	1	1 25	Lead	7439-92-1	60 9	1 1	0 36	mg/kg		J	Y	Y
S55C-W2-4	BM0144	REG	6-Sep-01	SO	1	1 5	Lead	7439-92-1	55 3	1 3	0 41	mg/kg		J	Y	Y
S55C-W3-0	BM0145	REG	6-Sep-01	SO	1	1 5	Lead	7439-92-1	12 7	1 1	0 36	mg/kg		J	Y	Y
S55C-W3-1	BM0146	REG	6-Sep-01	SO	1	1 5	Lead	7439-92-1	144	1 1	0 37	mg/kg		J	Y	Y
S55C-W3-2	BM0147	REG	6-Sep-01	SO	1	1 5	Lead	7439-92-1	45 3	1 1	0 36	mg/kg		J	Y	Y
S55C-W3-3	BM0148	REG	6-Sep-01	SO	1	1 5	Lead	7439-92-1	75 6	1 1	0 36	mg/kg		J	Y	Y
341-W1	BM0149	REG	20-Sep-01	SS	0	1	Lead	7439-92-1	141	5 7	1 9	mg/kg		J	Y	Y
341-W2	BM0150	REG	20-Sep-01	SS	0	1	Lead	7439-92-1	53 8	1 1	0 37	mg/kg		J	Y	Y
341-W3	BM0151	REG	20-Sep-01	SS	0	1	Lead	7439-92-1	71 9	1 2	0 38	mg/kg		J	Y	Y
AMS-FLDQC	BM8002	ER	18-Jul-01	BW	0	0	Lead	7439-92-1	0 005	0 005	0 0012	mg/L	U	nv	N	Y
AMS-FLDQC	BM8003	ER	23-Jul-01	BW	0	0	Lead	7439-92-1	0 005	0 005	0 0012	mg/L	U	nv	N	Y

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